DOC PER

June 1998

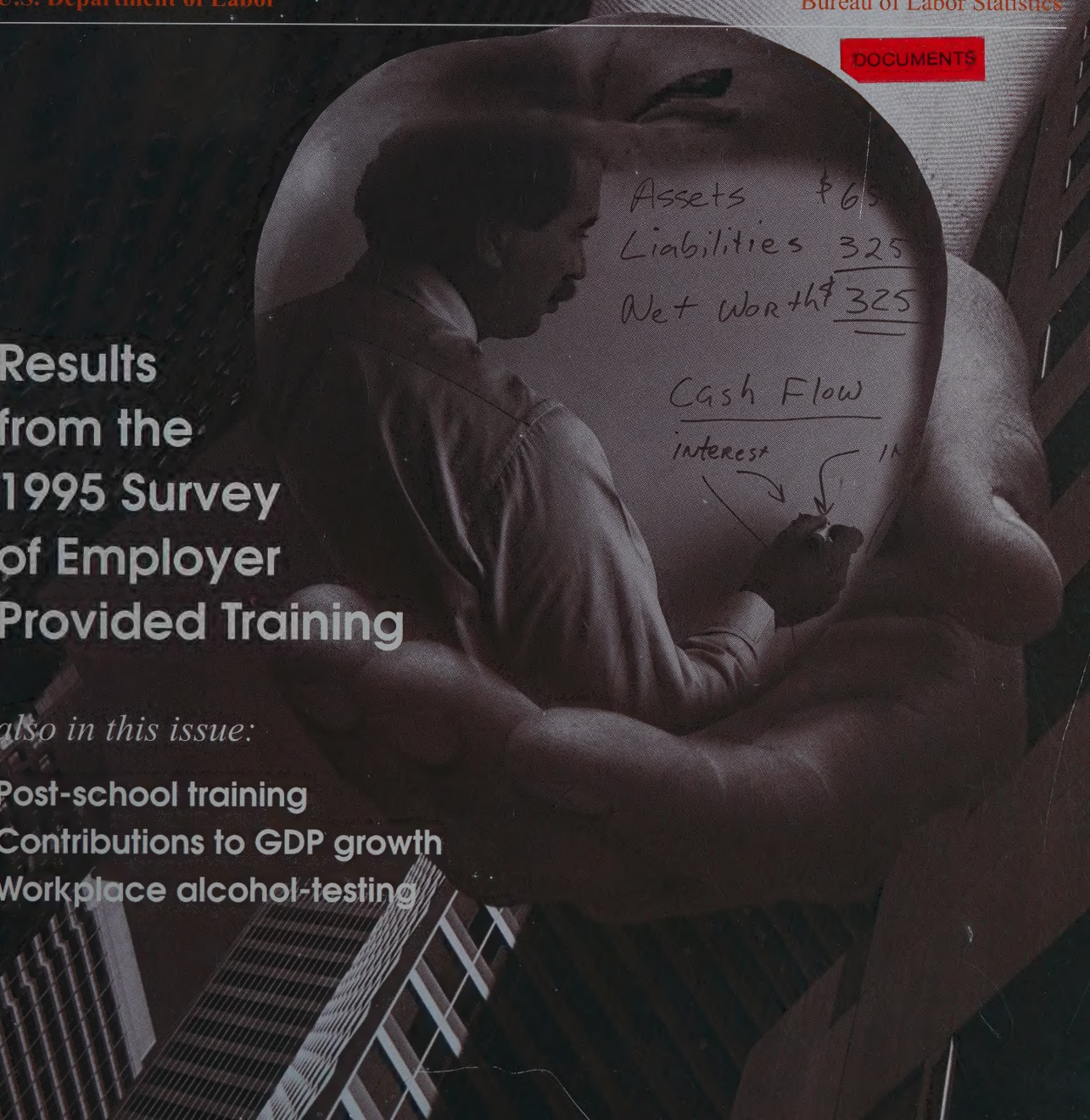
MONTHLY LABOR REVIEW

UIC Document
JUL 28 1998
Depository

U.S. Department of Labor

Bureau of Labor Statistics

DOCUMENTS



Results from the 1995 Survey of Employer Provided Training

also in this issue:

Post-school training
Contributions to GDP growth
Workplace alcohol-testing

U.S. Department of Labor
Alexis M. Herman, Secretary

Bureau of Labor Statistics
Katharine G. Abraham, Commissioner

The *Monthly Labor Review* (USPS 987–800) is published monthly by the Bureau of Labor Statistics of the U.S. Department of Labor. The *Review* welcomes articles on the labor force, labor-management relations, business conditions, industry productivity, compensation, occupational safety and health, demographic trends, and other economic developments. Papers should be factual and analytical, not polemical in tone. Potential articles, as well as communications on editorial matters, should be submitted to:

Editor-in-Chief
Monthly Labor Review
Bureau of Labor Statistics
Washington, DC 20212
Telephone: (202) 606–5900
E-mail: mlr@bls.gov

Inquiries on subscriptions and circulation, including address changes, should be sent to:
Superintendent of Documents
Government Printing Office
Washington, DC 20402
Telephone: (202) 512–1800

Subscription price per year—$25 domestic; $31.25 foreign. Single copy—$8 domestic; $10 foreign. Make checks payable to the Superintendent of Documents.

Subscription prices and distribution policies for the *Monthly Labor Review* (ISSN 0098–1818) and other government publications are set by the Government Printing Office, an agency of the U.S. Congress.

The Secretary of Labor has determined that the publication of this periodical is necessary in the transaction of the public business required by law of this Department. Periodicals postage paid at Washington, DC, and at additional mailing addresses.

Unless stated otherwise, articles appearing in this publication are in the public domain and may be reprinted without express permission from the Editor-in-Chief. Please cite the specific issue of the *Monthly Labor Review* as the source.

Information is available to sensory impaired individuals upon request:
Voice phone: (202) 606–7828
TDD phone: (202) 606–5897
TDD message referral phone: 1–800–326–2577

POSTMASTER: Send address changes to *Monthly Labor Review*, U.S. Government Printing Office, Washington, DC 20402-0001.

Cover designed by Keith Tapscott

Regional Offices and Commissioners

Region I
Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

Denis McSweeney (Acting)

U.S. Department of Labor
Bureau of Labor Statistics
JFK Federal Building, Rm E–310
15 New Subdury Street
Boston, MA 02203–1603

Phone: (617) 565–2327
Fax: (617) 565–4182

Region II
New Jersey
New York
Puerto Rico
Virgin Islands

John Wieting

Room 808
201 Varick Street
New York, NY 10014–4811

Phone: (212) 337–2400
Fax: (212) 337–2532

Region III
Delaware
District of Columbia
Maryland
Pennsylvania
Virginia
West Virginia

Alan Paisner

3535 Market Street
P.O. Box 13309
Philadelphia, PA 19101–3309

Phone: (215) 596–1154
Fax: (215) 596–4263

Region IV
Alabama
Florida
Georgia
Kentucky
Mississippi
North Carolina
South Carolina
Tennessee

Janet Rankin

Room 7T50
61 Forsyth Street, S.W.
Atlanta, GA 30303

Phone: (404) 562–2463
Fax: (404) 562–2550

Region V
Illinois
Indiana
Michigan
Minnesota
Ohio
Wisconsin

Peter Hebein

9th Floor
Federal Office Building
230 South Dearborn Street
Chicago, IL 60604–1595

Phone: (312) 353–1880
Fax: (312) 353–1886

Region VI
Arkansas
Louisiana
New Mexico
Oklahoma
Texas

Robert A. Gaddie

Room 221
Federal Building
525 Griffin Street
Dallas, TX 75202–5028

Phone: (214) 767–6970
Fax: (214) 767–3720

Region VII
Iowa
Kansas
Missouri
Nebraska

Region VIII
Colorado
Montana
North Dakota
South Dakota
Utah
Wyoming

Gunnar Engen

1100 Main Street
Suite 600
Kansas City, MO 64105–2112

Phone: (816) 426–2481
Fax: (816) 426–6537

Region IX
American Samoa
Arizona
California
Guam
Hawaii
Nevada
Trust Territory
of the Pacific Islands

Region X
Alaska
Idaho
Oregon
Washington

Stanley P. Stephenson

71 Stevenson Street
P.O. Box 3766
San Francisco, CA 94119–3766

Phone: (415) 975–4350
Fax: (415) 975–4371

22.6:
121/6

Table of Contents

MONTHLY LABOR REVIEW

June 1998 Volume 121, Number 6

Editor-in-Chief
Deborah P. Klein

Executive Editor
Richard M. Devens, Jr.

Managing Editor
Anna Huffman Hill

Editors
Brian I. Baker
Leslie Brown Joyner
Lawrence H. Leith
Mary K. Rieg

Book Reviews
Roger A. Comer
Ernestine Patterson Leary

Design and Layout
Catherine D. Bowman
Edith W. Peters
Catherine A. Stewart

Contributors
Iris S. Diaz
Heather Grob
Richard A. Hobbie
Lawrence H. Leith

Articles

Results from the 1995 Survey of Employer-Provided Training 3
Formal training tends to be higher at establishments that are larger and that have lower turnover and more benefits
H. Frazis, M. Gittleman, M. Horrigan, and *M. Joyce*

Young worker participation in post-school education and training 14
Data confirm that workers with more formal education are more likely to participate in employment-related training
Joseph E. Hight

GDP components' contributions to U.S. economic growth 22
Rebasing GDP on chained 2001 dollars enhances the role of services as a contributor to economic growth and diminishes that of private investment
Thomas Boustead

Workplace alcohol-testing programs: prevalence and trends 27
Testing employees for alcohol is on the rise, according to results from two nationwide surveys
Tyler D. Hartwell, Paul D. Steele, and *Nathaniel F. Rodman*

Departments

Labor month in review 2
Précis 35
Book reviews 36
Current labor statistics 41

UIC Documents
JUL 2 8 1998
Depository

The June *Review*

The Council on Competitiveness, a nonpartisan forum of business executives, university presidents, and labor leaders, has identified upgrading worker skills as the Nation's primary challenge over the next decade. Work-related learning and employer-provided training are one set of tools for bridging the gap between today's skill levels and the skills demanded of an increasingly knowledge-driven global economy. The focus section on training uses two very specialized data sets to explore who participates in training, how often firms are providing training, and how intense their training efforts are.

Harley Frazis, Maury Gittleman, Michael Horrigan, and Mary Joyce introduce *Monthly Labor Review* readers to the results of SEPT95, a new and very sophisticated survey of more than 1,400 business establishments and a randomly-selected sample of employees of the establishment that responded to the survey. This linked employer-employee design allows them to capture consistent data on the intensity of training, the mix of formal and informal instruction, and the types of skill learned. They found that more than 90 percent of establishments had provided training in the past 12 months and close to 70 percent of employees in those establishments reported receiving some formal training in the same period.

Joseph E. Hight explores data from the 1991 National Household Education Survey to discover that a substantial and rising number of workers participate in part-time adult education. Participation among young adults is greater among workers that already have the higher levels of formal academic attainment.

Thomas Boustead examines the projected effect of rebasing calculations of the contributions of the components of gross domestic product to overall growth to a base year in the middle of the Bureau's 1996–2006 projection period. He finds that using the 2001 base enhances the significance of the services component of the estimates, compared with its contribution to growth calculated in 1992 dollars.

Tyler D. Hartwell, Paul D. Steele, and Nathaniel F. Rodman extend a November 1996 article on workplace drug testing to similar tests for alcohol use. While alcohol testing is less prevalent than drug testing, it is becoming more common. Like drug testing, alcohol testing is more likely to be employed in larger establishments and is most common in the transportation industry.

Fewer workers on extended mass layoff

In the fourth quarter of 1997, there were 1,637 mass layoff actions, compared with 1,913 mass layoffs in the fourth quarter of the previous year. The layoffs in October through December of 1997 resulted in 297,247 workers being separated from their jobs for more than 30 days. In the fourth quarter 1996 layoffs, employers reported 412,486 workers on extended layoff.

In the fourth quarter of 1997, 56 percent of the separations were attributed to "seasonal work." Such layoffs were most numerous among workers in agricultural services, such as farm labor contacting, and food and kindred products manufacturing, especially canned and frozen fruits and vegetables. "Contract completion" was cited in 12 percent of separations, most frequently in heavy construction, help supply services, and motion picture and production. Layoffs due to internal company restructuring—business ownership change, bankruptcy, financial difficulty, or reorganization—accounted for 13 percent of all separations and were most frequent among manufacturing industries.

The Mass Layoff Statistics program is a Federal-State cooperative program which deploys a standardized, automated approach to using each State's unemployment insurance data base to identify, describe, and track the effects of major job cutbacks. Establishments with at least 50 claims filed against them in a consecutive 5-week period are contacted by the State employment security agency to determine whether these separations are of at least 30 days duration. If so, the total number of separations, the reason for the action, and other data about the establishment and the affected employees are obtained.

For additional information, see news release USDL 98–137, *Extended Mass Layoffs in the Fourth Quarter of 1997:* http://stats.bls.gov/newsrels.htm

College enrollment resumes uptrend

Two-thirds of 1997's high school graduates enrolled in colleges or universities that fall. This proportion has risen by 5 percentage points in the past 2 years, after remaining steady at about 62 percent from 1992 to 1995. Young women are more likely to go on to college in the fall after graduating from high school than are young men—70.3 percent versus 63.5 percent. Two-thirds of the college matriculants were attending 4-year institutions; one-third were in 2-year colleges. Almost half (46 percent) of all college enrollees also worked or looked for work.

For additional information, see news release USDL 98–171, *College Enrollment and Work Activity of 1997 High School Graduates*: http://stats.bls.gov/newsrels.htm

Subscriber survey

Are you one of the lucky subscribers randomly picked to give us your opinions of *Monthly Labor Review*? If you are, and have already returned the survey, we greatly appreciate your help. If you have not returned the survey, you still have time. We need to know what our readers want in *Monthly Labor Review*. After tabulating your responses, we will report the results here. Stay tuned! □

Results from the 1995 Survey of Employer-Provided Training

A new survey finds that U.S. employers allocate considerable time and resources to training their employees; the incidence of formal training tends to be higher at establishments that are larger and that have lower turnover and more benefits, among other characteristics

Harley Frazis,
Maury Gittleman,
Michael Horrigan,
and
Mary Joyce

In recent years, the issue of worker training has been pushed to the forefront of public policy circles. Concerns center around the decline in real wages of less educated workers, the effect of work organization on the demand for skills in the workplace, and the question whether U.S. workers are appropriately trained to meet the challenge of changes in job requirements brought about by the introduction of new technology.[1] In spite of the importance of this issue, substantial gaps exist in our knowledge of such fundamental questions as how much training takes place, who provides it, and who gets it.[2]

The lack of high-quality data on the amount of training being provided and on the costs of such training has been due primarily to the difficulty in measuring these variables. Because no universally accepted definition of *training* exists, estimates on the amount of training vary considerably from survey to survey. Some surveys collect information only on training that is highly structured, such as time spent in *formal* company training programs. This kind of approach ignores the more unstructured, *informal* ways in which employees can learn job-related skills.

The aim of this article is to fill in some of these gaps, making use of data recently collected in a survey by the Bureau of Labor Statistics: the 1995 Survey of Employer-Provided Training (SEPT95). This survey has a number of unique features that make it a valuable source of data for studying training practices: information on both formal and informal training is collected; the intensity of training is measured in such a way as to minimize recall problems; data on training expenditures are collected, making use of records already kept; and both establishments and employees at those establishments are surveyed, providing a wide range of characteristics that can be used in an analysis of training intensity.

The sections that follow use results from SEPT95 to address a number of different questions about employer-provided training: How much training is provided? How much of training is formal and how much is informal? How much do establishments spend on training? And what types of establishments offer training, and what types of employees are receiving it?

SEPT95

SEPT95 was conducted by the Bureau of Labor Statistics for the Employment Training Administration of the U.S. Department of Labor in order to provide nationally representative data on the current training practices of employers. A sample of 1,433 establishments was drawn to represent the universe of all private establishments with 50 or

Authors' identification is on page 12.

more employees.[3] (The sample was restricted to establishments with 50 or more employees in part because previous research showed that smaller establishments often have no formal training.[4]) In addition to collecting data from establishments, BLS field economists interviewed randomly selected employees in the establishments that responded to the survey.[5] A primary objective of SEPT95 was to go beyond the collection of data on the incidence of training and obtain estimates on the intensity of training—namely, hours and costs. Information on the hours and costs of *formal* training provided by employers was obtained from the respondents to the establishment survey,[6] whereas data on the hours and wage and salary costs of both *formal and informal* training received by workers were collected from randomly sampled employees.

Formal training is defined in the survey as training that is planned in advance and that has a structured format and a defined curriculum. Informal training is unstructured, unplanned, and easily adapted to situations and individuals.

The establishment survey consists of two survey instruments: a questionnaire and a training log. The employer questionnaire was designed to collect information on a variety of establishment characteristics and on selected costs of formal training. The cost items include the dollar amount spent during 1994 on the wages and salaries of in-house trainers, fees paid to outside training companies, tuition reimbursement, and contributions to training funds sponsored by unions, trade associations, and other outside agencies (hereafter, outside training funds). These items were included in the survey because field tests indicated that records were more likely to be available on them than on other costs of training, such as for materials or overhead. Information on the total dollar amount spent on training during the year (that is, a training budget) was not asked in SEPT95.[7] Usable employer questionnaires were obtained from 1,062 of the respondents, for a response rate of about 74 percent.

The employer log was designed to collect information on the amount of formal training that employers provided or financed for their employees. Employers were asked to report on all the formal training events provided or financed by the establishment over a 2-week period.[8] For each event, information was obtained on the number of employees in attendance, the hours of training, the type of training, and who conducted the training. Given that recordkeeping on training is not centralized in some establishments, a relatively short reference period was deemed necessary to provide high-quality data on the hours of formal training. Usable logs were collected from 949 respondents, equivalent to a response rate of 66 percent.

A similar design was used to collect information from randomly selected employees. An employee questionnaire obtained data on such demographic characteristics as age, sex, race, ethnicity, occupation, education, earnings, and tenure and also included general questions on past training received. From the 2,124 potential employees (2 employees from each of the 1,062 establishments that responded to the employer survey), 1,074 questionnaires were collected, for a response rate of 50.6 percent.

The employee log was used to capture the number of hours of both formal and informal training. Employees were asked to keep a log for 10 calendar days.[9] Employees reported any activity in which they were taught a skill or were provided with new information to help them do their job better. For each learning activity, respondents were asked who or what helped them learn the skill or information, how they learned the skill or information, what type of skill or information was learned, and how much time was spent learning the skill or information. On the basis of answers to the first two of these questions, the Bureau used an algorithm to classify each activity as formal training, informal training, or self-learning.[10] The response rate for the employee log was nearly 48 percent.

As mentioned, data for SEPT95 were collected through personal interviews, and the survey made use of already existing records as much as possible or, when there were no such records, information from respondents' logs kept expressly for the purposes of the survey. We believe that this approach results in a significant improvement in the quality of data on hours of training—particularly, hours of informal training—because employees were not assumed to have a definition of informal training in mind, nor were they asked to recall information from far back in time. Recall and definition problems have caused estimates of informal training to vary greatly by survey.[11] On the other hand, given the costliness of the approach used in SEPT95, sample sizes could not be as large as for a survey that measures only the incidence of such training. In addition, the period for which employer and employee respondents can be expected to keep a reliable log is fairly short. Thus, one should keep in mind that the estimates presented in this article—especially as regards the employee logs—will not be as precise as those of the typical large-scale Government establishment survey.[12]

Amount of training provided

Table 1 shows the findings from SEPT95 on the incidence and intensity of employer-provided training in establishments with 50 or more employees. Nearly 93 percent of such establishments reported that they provided or financed formal training for their employees in the last 12 months. On the employee side, close to 70 percent of employees who worked in these establishments reported receiving some formal training in the last 12 months. Further, the receipt of *in*formal training is, not surprisingly, even more common, with 96 percent of employees reporting that they received such training while working for their current employer.

Table 1. **Incidence and intensity of training, establishments with 50 or more employees**

Type of training	Percentage of establishments providing	Percentage of employees receiving
Formal training in the last 12 months	92.5	69.8
Informal training with current employer	...	95.8
	Hours per employee, employer survey	**May–October 1995 employee survey**
Total	...	44.5
Formal training	10.7	13.4
Informal training	...	31.1

As regards the intensity of training—that is, the hours employees spend in training—employers reported that they provided an average of about 11 hours of formal training per employee during May–October 1995. Employees said that they spent an estimated 13 hours in formal training over the 6-month period.[13]

Although the hours spent in formal training are significant, the results from the employee survey show that informal training is a very important way in which employees acquire job-related skills. On average, 31 hours per employee were spent in informal training, implying that 70 percent of the training over the May–October 1995 period was delivered through informal instruction.

Spending on training

Another way of gauging the size of employers' investment in training is to measure the amount of money employers spend on training-related activities. The measurement of training expenditures by establishments is very difficult. In general, estimates on the costs of training are hard to find, and the few that exist vary greatly.

Given the unique design of SEPT95, the Bureau was able to collect information on both the direct and indirect costs of training. From the establishment survey, data were obtained on some of the direct costs associated with providing formal training. These costs include the dollar amount spent in 1994 on the wages and salaries of in-house training personnel, fees paid to outside training companies, tuition reimbursement, and contributions to outside training funds. Note that SEPT95 did not collect information on *all* direct costs of training: some of the direct costs not included in the survey are payments for equipment, supplies, space, and travel for training.

From the employee survey, information was collected on the wages of employees, as well as the hours they spent in both formal and informal training. The information was used to construct estimates of the wage and salary costs paid to employees during their training. The wages and salaries that employees receive while in training represent an important indirect cost to employers of providing training, because the time that employees spend in training is time that they could have spent working at their jobs. The value of that time is estimated by multiplying an employee's hourly wage by the hours he or she spent in training.

In obtaining the foregoing kinds of information, SEPT95 adds data on the wage and salary opportunity costs of both formal and informal training to the basic information that exists on training expenditures. While SEPT95 does not provide the definitive answer to the question of how much is spent on training, the cost estimates from the survey represent a significant improvement in many respects over existing figures.

The first four rows of table 2 provide estimates from the employer survey on some selected direct costs of training. For this category, the first column shows expenditures per employee, the second column reports the total dollar amount spent during 1994, and the third column gives the range of expenditure levels calculated by taking one standard error and adding it to, or subtracting it from, the estimate.

Establishments with 50 or more employees spent an average of $139 per employee during 1994 on the wages and salaries of (both full-time and part-time) in-house trainers. An average of $98 per employee was spent on payments to outside trainers or training companies, and $51 per employee went for tuition reimbursement. A smaller amount, $12 per employee, was spent on payments to outside training funds.

Establishments with 50 or more employees spent $7.7 billion on wages and salaries of in-house trainers, compared with $5.5 billion on payments to outside trainers, during 1994. Expenditures on tuition reimbursement programs totaled $2.8 billion, while $0.6 billion went to training funds sponsored by unions and trade associations.

Although expenditures on these selected direct costs of

Table 2. **Expenditures on training, establishments with 50 or more employees**

Category	Per employee	Level (billions of dollars)	Error range of expenditures (billions of dollars)
1994 selected costs of formal training:			
Wages and salaries of in-house trainers	$139	$7.7	$7.0–$8.5
Payments to outside trainers	98	5.5	4.8–6.1
Tuition reimbursements	51	2.8	2.6–3.0
Contributions to outside training funds	12	.6	.5–.8
May–October 1995 wages and salaries paid to trainees	647	37.1	32.8–41.4
For formal training	224	12.8	11.0–14.7
For informal training	423	24.2	19.9–28.5

Table 3. Incidence and intensity of training, by establishment size and industry

Size and industry	Percent of establishments that provided formal training in the last 12 months	Percent of employees who received formal training in the last 12 months	Hours per employee in May–October 1995			
			Employer survey	Employee survey		
			Formal training	Formal training	Informal training	Percent of total hours spent in formal training
All establishments	92.5	69.8	10.7	13.4	31.1	30.1
Establishment size						
50–99 employees	90.8	61.6	5.7	8.2	31.9	20.4
100–499 employees	94.4	73.0	12.1	13.5	34.5	28.1
500 or more employees	98.1	71.0	12.0	16.6	26.0	39.0
Industry						
Mining	96.7	94.7	14.4	17.2	18.9	47.7
Construction	94.7	71.2	5.0	11.4	36.1	24.1
Manufacturing:						
Durable goods	88.1	78.3	11.7	20.8	30.3	40.8
Nondurable goods	95.2	85.4	11.9	21.7	18.5	54.0
Transportation, communications, and public utilities	96.5	81.4	18.3	17.6	19.7	47.1
Wholesale trade	98.4	68.1	8.4	8.3	25.4	24.7
Retail trade	88.7	48.8	3.7	4.2	32.6	11.5
Finance, insurance, and real estate	95.6	87.4	16.6	15.9	34.7	31.4
Services	93.5	70.7	11.0	13.2	37.0	26.3

training are substantial, employers spent an even larger amount on indirect wage and salary costs of training. Some $647 was spent per employee between May and October 1995 on the wages and salaries paid to workers during their training. About 65 percent of this amount, or $423, was spent on informal training. In total dollars, $37 billion was spent on indirect wage and salary costs over the May–October period: $13 billion for time spent in formal training and $24 billion for time spent receiving informal training.

Establishments providing training

What determines whether an establishment provides training and how much training it provides? One simple answer is that establishments provide training to their workers if the benefits of the training exceed the costs. This leads to the more difficult question of what affects the benefits and costs of training. The answer to this question is complex and likely to differ across establishments and types of training. Without spelling out all the various factors and motivations behind a firm's decision to offer training, this section studies the extent to which the incidence and intensity of training are related to a variety of establishment characteristics, such as size, industry, labor turnover, the nature of part-time and contract employment, the presence of unions, the adoption of various alternative workplace practices, and the provision of benefits.

Size and industry. The size of an establishment may influence its decision to provide training, particularly formal training. For example, larger establishments might be more likely to provide formal training, due to economies of scale. In other words, the total cost of training may not increase much as the number of trainees increases, because the cost of hiring a trainer and developing a curriculum are relatively fixed. An establishment's industry affiliation also may affect its training decisions, given that product market conditions, profitability, technology, and a variety of other factors that affect the benefits and costs of training differ across industries. For example, if demand in an industry fluctuates widely because of cyclical or seasonal factors, managers of an establishment in that industry may be reluctant to make large investments in training, knowing that workers might have to be laid off before a return on the investment is realized.

Table 3 suggests that small establishments are somewhat less likely to provide formal training than are larger ones, with 91 percent of establishments with 50–99 employees having provided formal training in the last 12 months, compared with 94 percent of establishments with 100–499 employees and 98 percent of establishments with 500 or more employees. Similarly, findings from the employee survey show that employees working in small establishments were less likely to receive formal training than were those working in larger establishments. Some 62 percent of employees in establishments with fewer than 100 employees had received formal training in the last 12 months, as opposed to 73 percent for establishments with 100–499 employees and 71.0 percent for establishments with 500 or more employees.[14]

The percentage of establishments reporting that they had provided formal training in the last 12 months was generally high for all industries, ranging from 88 percent in durable-

goods manufacturing to 98 percent in wholesale trade. The percentage of employees who reported that they had received formal training shows more variation across industries. Employees in mining industries were the most likely to have received training in the last 12 months, at 95 percent, compared with 68 percent of employees in wholesale trade and 49 percent in retail trade.

The amount of formal training provided also varies by establishment size. Table 3 shows that establishments with fewer than 100 employees provided fewer hours of formal training per employee than did larger establishments. Establishments in the smallest size class (50–99 employees) provided approximately 6 hours of formal training per employee, compared with 12 hours per employee for medium-sized (100–499 employees) and large (500 or more employees) establishments. Similar findings emerge from the employee survey: the hours of formal training that employees received in May–October 1995 range from 8 hours for small establishments to almost 17 hours for large ones; however, the hours of informal training do not show any clear pattern by establishment size.

As the last column in the table shows, larger establishments tend to rely more heavily on formal training as a means of training their employees. Employees in establishments with 500 or more employees spent 39 percent of their total training time in formal training, compared with only 20 percent for employees in establishments with fewer than 100 employees. These findings support the argument for economies of scale in formal training.

The amount of formal training varies considerably across industries. In general, establishments in the transportation, communications, and public utilities; finance, insurance, and real estate; and mining industries provided more hours of formal training than the average, and establishments in retail trade, wholesale trade, and construction provided fewer hours than the average.

Turnover. One establishment characteristic that has received considerable attention among economists is the relationship between training and the level of employee turnover. Turnover and training are expected to be inversely related: the higher the level of turnover, the lower is the amount of training. This expectation is based on the reasoning that the longer an employee stays with an employer, the higher will be the return to training. As noted earlier, if labor turnover is high, employers will be reluctant to invest in training, knowing that workers might have to be laid off or quit before a return to the investment in training can be earned. From the employee's view, if the training involves skills specific to the establishment, it is likely to contribute to an increase in productivity at that establishment.[15] Greater productivity at the establishment, in turn, will tend to raise a worker's wage above what he or she would earn elsewhere, thus providing an incentive to stay. In other words, training can serve to lower turnover.

The findings from SEPT95 generally support the inverse relationship between training and turnover.[16] Table 4 suggests that employees working in establishments with high turnover are less likely to receive formal training than their counterparts in establishments with medium or low turnover. The same relationship is found when one examines the percentage of establishments that had provided formal training in the last 12 months obtained from the employer survey.

Table 4 also indicates that high-turnover establishments provided less formal training than did other establishments. Hours of formal training from both the employer and employee surveys support this finding. Hours of informal training, however, are not inversely related to turnover. Perhaps most striking is the relationship between turnover and an establishment's reliance on formal training. Employees working in low-turnover establishments spent about 59 percent of their total training time in formal training, compared with 18 percent for employees in high-turnover establishments. These findings support the theory that employers may be reluctant to invest in costly training (presumably, formal training is more costly than informal training) when employee turnover is high, as well as the theory that employers who invest in costly training are less likely to lay off workers or have workers quit.

Unionization. There are a number of reasons that the presence of unions may lead to higher levels of training. Collective bargaining agreements often require that employers pro-

Table 4. Incidence and intensity of training, by employee turnover

Turnover	Percent of establishments that provided formal training in the last 12 months	Percent of employees who received formal training in the last 12 months	Hours per employee in May–October 1995			
			Employer survey	Employee survey		
			Formal training	Formal training	Informal training	Percent of total hours spent in formal training
Low	92.7	78.0	10.8	27.3	19.0	58.9
Medium	96.0	74.7	12.5	15.6	30.4	33.8
High	88.6	60.7	7.2	7.6	34.2	18.2

vide training. In addition, union jobs generally pay more than nonunion jobs, and these higher wages may reduce turnover, which, as just noted, could lead to increased training.

Alternatively, establishments with labor unions may provide *less* training than their nonunionized counterparts, for a number of reasons. The higher wages of unionized workers might encourage establishments to recruit already skilled workers, so they would not have to incur the added expense of training their employees. Further, unions—especially in the construction trades—sometimes conduct their own training, which again reduces an establishment's need to train employees itself.

Table 5 shows very little difference in the likelihood of providing formal training between union and nonunion establishments.[17] Some differences emerge from an examination of the number of hours of formal training per employee obtained from the employer survey. Establishments without unions provided an average of 11 hours of formal training per employee, slightly more than the approximately 10 hours for unionized establishments.

One possible explanation for the lower hours of formal training among union establishments is that workers in unionized shops may be more experienced, on average, and thus require less training. A question concerning an employee's tenure with the current employer asked in the employee survey allows us to investigate this hypothesis.

As shown in the following tabulation of the distribution of employee tenure in union and nonunion establishments, union establishments do appear to have a larger percentage of workers with more tenure:

Tenure with current employer	*Nonunion*	*Union*
Less than 1 year	8.6	2.8
1 to 5 years	41.7	25.6
5 to 10 years	26.4	28.7
10 or more years	23.3	43.0

Forty-three percent of workers in union establishments had a tenure of 10 years or more with their current employer, compared with only 23 percent of workers in nonunion establishments.

Results from the employee survey show only a small difference in the hours of formal training between union and nonunion employees. However, employees in union establishments received fewer hours of informal training. Again, this finding is consistent with union establishments having a generally more tenured work force, and, as is shown later, older, more tenured workers receive less informal training.

Table 5 also shows that union establishments tend to rely more heavily on formal training than do nonunion establishments: 36 percent of total training received by employees in union establishments was formal training, compared with 28 percent for nonunion establishments. Again, this may be due to the differences in the distribution of workers' tenure in the two types of establishments, or it may result from union efforts to promote formal training through collective bargaining agreements.

Human resource practices. Whether and how much training an establishment provides is likely to be influenced by training's place in a broader range of human resource practices. For instance, training is more likely to be provided if employers expect their workers to stay for an extended period; generous benefits may help ensure that workers do not quit before the employer is able to recoup its training costs. SEPT95 asked about the provision of the following benefits: paid vacation, paid sick leave, health care benefits, employee assistance program, employee wellness program, pension plan, profit sharing, flexible work schedules, flexible work site or telecommuting, employer-financed child care, and paid parental or family leave.

In recent years, there has been much talk about changes in workplace practices that are designed to move businesses away from a rigid and hierarchical management style. Training has been mentioned as an integral part of successfully implementing these practices so that workers have the necessary interactive and job skills to carry out the practices.[18] SEPT95 asked whether establishments had any of the fol-

Table 5. Incidence and intensity of training, by union presence

Union presence	Percent of establishments that provided formal training in the last 12 months	Percent of employees who received formal training in the last 12 months	Hours per employee in May–October 1995			
			Employer survey	Employee survey		
			Formal training	Formal training	Informal training	Percent of total hours spent in formal training
No employees represented by union	92.9	71.6	11.0	14.0	35.4	28.4
Some employees represented by union	90.6	65.7	9.7	12.1	21.2	36.2

Table 6 Incidence and intensity of training, by selected human-resource practices

Number of benefits, number of workplace practices, and presence of contract employees	Percent of establishments that provided formal training in the last 12 months	Percent of employees who received formal training in the last 12 months	Hours per employee in May–October 1995			
			Employer survey	Employee survey		
			Formal training	Formal training	Informal training	Proportion of total hours spent in formal traning
Number of selected establishment benefits:						
Six or fewer	89.5	62.9	7.1	10.2	28.7	26.2
Seven or more	99.6	76.9	14.8	16.7	33.5	33.3
Number of selected establishment workplace practices:						
Three or fewer	89.1	66.9	7.6	12.0	31.4	27.6
Four or more	98.6	72.4	13.8	14.7	30.8	32.3
Presence of contract employees:						
No contract employees	90.2	63.6	8.1	8.7	33.2	20.7
Some contract employees	98.5	77.0	13.6	18.7	28.7	39.5

lowing workplace practices: pay increases that are directly linked to mastering new skills; employee involvement in the establishment's technology and equipment decisions; job redesign or reengineering; job rotation; just-in-time inventories; coworker review of employee performance; quality circles; total quality management; and self-directed work teams.

Another human-resource practice that may be related to employers' training decisions is the use of contract workers, although the direction of the relationship is not always clear and most likely depends on the motivation for contracting. Establishments using contract workers to save money may not have the resources to provide training, while those relying on outside employees to protect a "core" group of workers from fluctuations in workload may actually provide substantial amounts of training to the core group.

Table 6 indicates that establishments with high numbers of benefits and workplace practices, as well as establishments that make use of contract employees, were more likely to provide formal training; also, employees working in such establishments were more likely to have received formal training. These findings are supportive of the notion that some businesses are pursuing a "high-performance" strategy wherein "core" workers are provided formal training, generous benefits, and more autonomy and flexibility to make decisions.

Findings from the employer survey suggest that establishments with more benefits and more workplace practices also provided more formal training. Results from the employee survey do not show as strong a relationship between the intensity of training and these human-resource practices. Hours of formal training are higher for employees working in establishments providing more benefits and more workplace practices, but the differences are not statistically significant. Hours of informal training found in the employee survey do not consistently increase as the number of benefits or workplace practices rises.

Results from the employee survey do show that establishments with a small number of benefits and workplace practices are less likely to rely on formal training. For instance, employees working at establishments with fewer than four benefits spent only 10 percent of their training time in formal-training activities, while employees in establishments with eight or more benefits spent nearly 30 percent of training time in such activities.

Recipients of training

The previous section showed how training varied across different types of establishments. In this section, the focus is on the characteristics of *workers*, rather than establishments. Are some types of workers more likely than others to receive training? If so, what type of worker receives the most training?

SEPT95 asked employees various questions about themselves and their jobs at the establishment. The demographic characteristics included age, sex, race, ethnicity, and education level. The employment characteristics obtained were employee tenure, whether the employee was working part or full time, occupation, and earnings.

Table 7 shows the incidence and intensity of training for workers in various age, sex, race or ethnicity, and education groups. Only the incidence of formal training is shown, because, as mentioned earlier, the receipt of informal training was found to be very common (90 percent or higher) for all workers. Hours of both formal and informal training are presented.

In general, the youngest and the oldest workers were less likely to have received formal training during the last 12

months than were workers aged 25 to 44. The table also shows that the total hours of training were low for the youngest workers, increased with age, and then dropped off for workers 55 years of age and older. This general pattern is evidenced for hours of both formal and informal training, although only the hours of formal training are significantly lower for the youngest and oldest groups. As a result, only 11 percent of the youngest workers' training is formal, compared with 30 percent for older workers.

The relatively low hours of formal training among the very young provides some support for the notion that employers or employees (or both) may be delaying their investment in costly training until the employer-employee match is found to be a good one. The low hours of training for workers 24 years of age or younger may also be influenced by the fact that very young workers tend to change jobs frequently and may not have settled into their chosen careers.

Table 7. Incidence and intensity of training, by demographic characteristics

Demographic characteristic	Percent of employees who received formal training in the last 12 months	Hours per employee in May–October 1995		
		Formal training	Informal training	Percent of total training hours spent in formal training
All employees	69.8	13.4	31.1	30.1
Age				
24 years and younger	63.4	2.7	21.4	11.1
25 to 34 years	78.5	14.0	32.5	30.0
35 to 44 years	74.7	15.4	30.3	33.8
45 to 54 years	64.7	17.2	39.0	30.6
55 years and older	50.7	5.7	17.1	25.1
Sex				
Men	66.5	12.2	35.4	25.6
Women	73.1	14.6	26.9	35.2
Race and origin				
White	70.4	13.6	35.0	27.9
Black	70.6	13.8	13.9	49.9
Hispanic origin	73.7	11.0	21.7	33.6
Educational attainment				
High school graduate or less	60.1	10.9	24.8	30.6
Some college	67.8	14.3	37.0	27.8
Bachelor's degree or higher	89.7	16.1	31.8	33.6

Table 7 shows that 73 percent of women reported receiving formal training in the last 12 months, compared with 67 percent of men. Men received an average of 48 hours of training during the period from May to October 1995, as opposed to 42 hours for women. Neither the difference in incidence nor that in hours of training was statistically significant at conventional levels.

Responses to the questions in the survey regarding ethnicity and race were used to group employees into three categories: white, black, and Hispanic. The three groups are not mutually exclusive, as Hispanics can be either black or white. Table 7 shows small and statistically insignificant differences in the incidence of either formal or informal training by race and ethnicity. In general, white workers tended to receive more hours of training over the 6-month period than did workers in the other two categories.[19] Interestingly, while black workers received about the same number of hours of formal training as white workers, they received significantly fewer hours of informal training.

Table 7 also indicates that workers with a bachelor's degree or higher were more likely to have received formal training during the last 12 months than were their less educated counterparts. About 90 percent of those with a bachelor's degree or higher received training during that period, compared with 60 percent of those with a high school diploma or less schooling. The number of hours of training also is smaller for the least educated group, although the differences in hours of training per employee across the different educational attainment groups are not significant. The pattern of training by education level is consistent with past research, which has repeatedly shown that more educated workers receive more training.[20]

Table 8 shows the incidence and intensity of training by employment characteristics. One such characteristic is whether the employee works part time or full time on his or her job. It is expected that employers will invest more heavily in training their full-time employees than their part-time counterparts. The results in the table are consistent with this expectation, with full-time workers (35 or more hours per week) more likely to have received formal training in the preceding 12 months than part-time employees were (71.6 percent, compared with 56.1 percent). Similarly, full-time workers received an average of 48.8 hours of training, compared with 12.5 hours for part-time workers. Most of the difference is the result of patterns in informal training, although differences are evident for formal training as well.

Workers were put into quartiles by calculating what their

earnings would be if they worked 35 hours in a week and then finding their position in the weekly earnings distribution of U.S. workers who work 35 or more hours a week. As the table shows, a smaller proportion of those in the bottom quartile receive formal training than do higher earners. For instance, 62 percent of those in the bottom quartile received formal training in the preceding 12 months, compared with 84 percent for the top quartile. Hours of training also are lower for those in the bottom quartile: these individuals received an average of 4 hours of formal training, as opposed to 23 hours for those in the top quartile. Furthermore, lower earning employees received a smaller share of training via formal delivery methods than did workers with higher earnings.

An employee's occupation is another job characteristic that is likely to influence the amount and kinds of training that he or she receives. Service workers stand out in table 8 as being less likely than those in other occupations to receive formal training. The table also shows that professional and technical workers tend to receive more training than the average worker, having the highest number of hours of training per employee for both formal and informal training, followed by production and construction workers. In terms of formal training alone, there is a considerable gap between the number of hours of training received by professional and technical workers (22) and that received by most other occupations, particularly managers (4) and service workers (6).

Table 8. Incidence and intensity of training, by employment charateristics

Employment characteristic	Hours per employee in May–October 1995			
	Percent of employees who received formal training in the last 12 months	Formal training	Informal training	Percent of total training hours spent in formal training
All employees	69.8	13.4	31.1	30.1
Usual weekly hours worked				
Fewer than 35 hours	56.1	4.8	7.7	38.2
35 or more hours	71.6	14.6	34.2	29.9
Earnings				
First quartile	61.8	4.1	30.6	11.8
Second quartile	74.5	11.6	30.5	27.6
Third quartile	62.0	15.9	39.6	28.6
Fourth quartile	84.0	22.8	21.1	52.0
Occupation				
Managerial and administrative	80.2	4.3	22.4	16.2
Professional, paraprofessional, and technical	84.8	22.3	38.7	36.6
Sales, clerical, and administrative support	72.5	10.2	23.2	30.4
Service	49.8	5.6	22.1	20.2
Production, construction, operating, maintenance, and material handling	66.3	15.2	38.5	28.3
Tenure with current employer				
Up to 2 years	67.5	8.9	56.5	13.6
More than 2 years and up to 5 years	56.8	4.5	19.5	18.8
More than 5 years and up to 10 years	79.7	19.5	27.0	41.9
More than 10 years	75.3	21.1	20.5	50.7
Tenure in current occupation				
Up to 2 years	73.4	12.5	64.7	16.2
More than 2 years and up to 5 years	68.4	7.5	22.4	25.0
More than 5 years and up to 10 years	68.9	9.6	20.0	32.4
More than 10 years	69.2	19.4	24.4	44.3
Tenure in current job				
Up to 2 years	73.4	13.2	48.9	21.2
More than 2 years and up to 5 years	59.7	4.6	20.3	18.3
More than 5 years and up to 10 years	78.1	22.6	14.4	61.1
More than 10 years	66.5	23.6	13.7	63.3

The survey also asked employees about three different types of job tenure: the amount of time the worker had been with his or her current employer; the amount of time the worker had been in his or her current occupation (that is, had done a particular kind of work); and the amount of time a worker had been in his or her current position at the establishment. Table 8 shows the receipt of formal training in the preceding 12 months and the hours of formal and informal training for these three kinds of tenure. The results suggest that, after staying with the same employer for 5 years, the likelihood of having received formal training in the last 12 months rises. A similar pattern exists for tenure in the current job, but tenure in a given occupation does not appear to have a strong association with the receipt of formal training.

With regard to hours of training, employees with low tenure (as measured by all three types of tenure) tended to receive more hours of informal training than did more experi-

enced workers. For example, workers with fewer than 2 years of tenure with the current employer spent about 57 hours in informal training, compared with nearly 20 hours for workers with 2 to 5 years of tenure. As regards formal training, the increase in hours tended to be higher for more tenured workers: formal-training hours increased from nearly 5 to about 20 as the worker moved from 2 to 5 years of tenure with the current employer to 5 to 10 years. The simplest economic models would predict training to decline with tenure on a given job, as the earlier an employee receives training, the longer returns to the investment in training would be received. However, it may be that employers wait until a worker has been on the job a while and has proven satisfactory before heavily investing in costly formal training for that worker.[21] For all three types of tenure, formal training appears to make up a growing share of total training as tenure increases, as shown in table 8. One explanation for this is that, as tenure increases, workers become more likely to be the providers, rather than the recipients, of informal training.

THIS ARTICLE HAS DISCUSSED employer-provided training using data from SEPT95, a new BLS survey. We believe that SEPT95 represents an advance in establishment-based training surveys, as it goes beyond the incidence of training to obtain estimates of the *intensity* of training provided by establishments. In addition to obtaining estimates of formal training, the survey collected information on the extent of informal training by interviewing randomly selected employees.

The findings from SEPT95 indicate that U.S. employers expend a considerable amount of time and resources on both formal and informal training. For example, establishments with 50 or more employees—the sampling frame for the survey—paid $7.7 billion to in-house training staff and $5.5 billion to outside trainers during 1994, $139 and $98 per employee, respectively. Training expenditures tend to increase with establishment size for all types of expenditures covered in the survey. The wage and salary cost of employees' time while in training represented an even greater expense, with $224 spent per employee for employees' time in formal training and $423 spent for informal training, from May to October 1995—rates of $448 and $864 per employee, extrapolated to 1 year.[22] Employees received between 10 and 13 hours of formal training and 31 hours of informal training during the period from May to October 1995. Assuming an average workweek of 40 hours, these findings suggest that workers spend roughly 4 percent of their working hours in one or the other kind of training.

Findings from the employer data indicate that the incidence of formal training tends to be higher at establishments that are larger, have lower turnover, have higher numbers of benefits, use more alternative workplace practices, and use contract workers.[23] These findings are consistent with the idea that employers who show signs of promoting a long-term relationship with their employees tend to offer more training. Also, because the incidence and hours of training appear to increase with higher pay and more education, the analysis of employee data confirms the finding from other household surveys that more skilled workers are more likely to receive training. □

Footnotes

AUTHORS' IDENTIFICATION: Harley Frazis and Mary Joyce are research economists in the Office of Employment and Unemployment Statistics, Bureau of Labor Statistics. Michael Horrigan is the Director of Longitudinal Research in the same office. Maury Gittleman, a research economist for the Office of Compensation and Working Conditions, Bureau of Labor Statistics, is currently on detail with the Organization for Economic Cooperation and Development, Paris, France. This article is a shortened version of a paper appearing in *Advances in the Study of Entrepreneurship, Innovation, and Economic Growth*, vol. 9 (Greenwich, CT, JAI Press, 1997), pp. 47–82. The views expressed are those of the authors and do not necessarily reflect the views of the U.S. Department of Labor.

[1] See Frank Levy and Richard J. Murnane, "U.S. Earnings Levels and Earnings Inequality: A Review of Recent Trends and Proposed Explanations," *Journal of Economic Literature*, September 1992, pp. 1333–81, for a survey of recent changes in the earnings structure; Paul Osterman, "Skill, Training and Work Organization in American Establishments," *Industrial Relations*, April 1995, pp. 125–46, for a discussion of the relationship between work organization and training; and Ann P. Bartel and Nachum Sicherman, "Technological Change and the Skill Acquisition of Young Workers," unpublished, April 1995, for an analysis of the effect of technological change on young workers' acquisition of skills.

[2] Lisa Lynch, "A Needs Analysis of Training Data: What Do We Want, What Do We Have, Can We Ever Get It?" in J. Haltiwanger, M. E. Manser, and R. Topel, eds., *Labor Statistics Measurement Issues*, NBER Studies in Income and Wealth (Chicago, University of Chicago Press, forthcoming).

[3] The sample frame for the survey was the list of privately owned establishments on the BLS Universe Data Base. The frame units were classified into strata based on nine industries and five employment size classes.

[4] Harley J. Frazis, Diane E. Herz, and Michael W. Horrigan, "Employer-provided training: results from a new survey," *Monthly Labor Review*, May 1995, pp. 3–17.

[5] Two employees were randomly selected at each establishment.

[6] Experienced BLS interviewers were instructed to administer the survey to the person at the establishment who was most familiar with its training policies and practices. At larger establishments the interviewers were told to ask for the training or human resource director, and at smaller establishments they were requested to seek the person who handles personnel and training issues.

[7] Previous surveys that asked for total expenditures on training experienced very low response rates. The 6-percent response rate for this item on the Columbia Human Resource Management survey is one such example.

[8] Interviewers had the option of collecting the training log data for the preceding 2 weeks at the time of the interview or leaving the log with the respondent to complete over the next 2 weeks. The decision as to which alternative to choose was based on the availability and quality of training records.

[9] Interviewers trained the employees on the use of the log by having them recall their activities over the previous 3 days and then keep a daily log over the next 7 days.

[10] Self-learning activities are not counted as training.

[11] Mark Loewenstein and James Spletzer, "Formal and Informal Training: Evidence from the NLSY" (Bureau of Labor Statistics, unpublished, April 1998).

[12] In particular, estimates of the incidence of training from the earlier 1993 Survey of Employer Provided Training (SEPT93), which contained no measures of the intensity of the training, will be more precise. (See Frazis, Herz, and Horrigan, "Employer-provided training," for results from SEPT93.)

[13] These two estimates of the hours of formal training were obtained from different survey instruments and respondents, so there are a number of methodological reasons for which they might be expected to differ. However, it is also important to keep in mind that the two estimates are *independent*, each measured with a different degree of precision. We conducted a statistical test that incorporates the standard error associated with each estimate and found that the hypothesis that the two are equal could not be rejected at the 10-percent significance level.

[14] Because the incidence of informal training is relatively high in any size of establishment (95 percent of employees received such training while working for their current employer), very small differences across size classes were evident for the provision of informal training.

[15] A model of training that accounts for firm-specific skills was first developed by Gary Becker, *Human Capital* (New York, National Bureau of Economic Research, 1975).

[16] Turnover is measured by computing the ratio of hires and separations to employment during a 3-month period. On the basis of this computation, establishments were placed into three categories, depending on whether their turnover was low, medium, or high. A small number of establishments tended to have very low turnover, with the remaining establishments spread out fairly evenly. As a result, the low-turnover category contains only 7 percent of all establishments, compared with 49 percent for the medium-turnover category and 44 percent for the high-turnover one.

[17] Establishments were grouped into two categories, depending on whether any of the workers were covered by a collective bargaining arrangement. Owing to the relatively low percentage of U.S. employees who were unionized, the vast majority of establishments (82 percent) fall into a category in which none of the employees is a member of a labor union.

[18] Thomas Bailey, *Discretionary Effort and the Organization of Work: Employee Participation and Work Reform since Hawthorne* (New York, Columbia University, 1993).

[19] The differences in hours between whites and Hispanics were not significant.

[20] Charles Brown, "Empirical Evidence on Private Training," in *Investing in People*, vol. 1 (U.S. Department of Labor, Commission on Workforce Quality and Labor Market Efficiency, 1989), pp. 301–29.

[21] See Mark Loewenstein and James Spletzer, "Belated Training: The Relationship between Training, Tenure, and Wages" (Bureau of Labor Statistics, unpublished, September 1996), for evidence on "belated" formal training in the NLSY.

[22] Such extrapolation assumes no seasonal differences in the provision of training.

[23] These conclusions are based on the bivariate relationship between the number of hours of formal training and a particular variable. To the extent that the variables are correlated with each other (for example, larger firms tend to use more contract workers), some of those relationships may not hold in a multivariate context. (For a multivariate analysis of the SEPT95 data, see Harley Frazis, Maury Gittleman, and Mary Joyce, *Determinants of Training: An Analysis Using Both Employer and Employee Characteristics* (Bureau of Labor Statistics, unpublished, February 1998).

Young worker participation in post-school education and training

Although participation in post-school adult education and training has increased for all workers, data from the 1991 National Household Education Survey confirm that workers with more formal education are more likely to participate in employment-related training

Joseph E. Hight

The level of formal education attained by U.S. workers increased substantially during the 1970s and 1980s.[1] Over the same period, real (inflation-adjusted) earnings declined for many workers,[2] prompting some analysts to focus on the methods by which workers augment their skills once they have completed full-time schooling.[3] Inquiry into the issue, however, has been hampered by a relative lack of data.[4]

Burt Barnow and others review most of the existing data that have been used to look at skill development after full-time schooling has ceased.[5] Among these data, the 1991 National Household Education Survey (NHES) has been perhaps the least used.[6] First conducted in 1991, the NHES is a relatively new survey designed to address a wide range of education-related issues. Because it provides information not obtained in other major surveys (for example, detailed information is obtained about the kind of training taken, reasons for taking it, and whether or not it was required by the employer), the NHES offers an additional data source for researchers, policy analysts, and others interested in the educational activities of the U.S. population.[7]

This article uses data from the 1991 NHES (Adult Education component) to provide a picture of the extent to which young workers (17 to 35 years) who are not currently enrolled in school full time participate in part-time education and training activities. Respondents were grouped by age and education level to examine how much participation in such activities varies by these characteristics. Participation rates are compared across groups classified according to the amount of formal education completed. Comparisons also are made of participation in adult education activities across age cohorts.

Much like in the earlier studies, the NHES data show that participation in part-time adult education activities has been increasing and that young workers with higher levels of formal education are more likely to participate in such activities (including employment-related training). The discrepancy is particularly great between those with at least some college education and those with only a high school diploma or less. If this discrepancy became greater during the 1980s, it could be a contributing factor to the increase in the relative earnings of more highly educated workers during the period.[8]

The first section of the article briefly describes the 1991 NHES and the sample used in the analysis. Subsequent sections include the following: a description of the data as it is organized by level of formal education and age; an analysis of the data looking at both those who participated in part-time adult education and training activities in the *12 months prior to the survey*, as well as those who had done so *at any time* since completing their formal schooling; and finally, the results of this study are compared with those of earlier studies that used the National Longitudinal Sur-

Joseph E. Hight is an economist in the Office of the Assistant Secretary for Policy, U.S. Department of Labor.

vey of Youth (NLSY) and the Current Population Survey (CPS).

The National Household Education Survey

The 1991 NHES,[9] administered between January 1990 and May 1991 by the National Center for Education Statistics (NCES), is a telephone survey of a random sample of the civilian noninstitutionalized U.S. population. The adult education component of the 1991 NHES provided a sample of 12,568 completed interviews with adults older than 16 years of age. The adult education component is used, with the sample further restricted to 17- to 35-year-olds who were not enrolled in school full time when the survey was conducted. The young adult labor force is emphasized because of the importance of training for workers in their early years in the work force. Training early helps workers to better capitalize on what they learned in their formal full-time schooling experience; it also aids the school-to-work transition.

Respondents included in this study answered "no" to the question, "Have you been enrolled as a *full-time* student in any kind of school, training program, or other educational program in the past 12 months?" Labor force participants are defined here as those who "ever worked at a job for pay" and who said that, "in general," they considered their primary activity during the previous 12 months to have been "working at a job."

In the NHES, part-time adult education and training include any of the following: part-time college courses; continuing education courses or noncredit courses; courses by mail, television, radio, or newspaper; private instruction or tutoring; educational or training activities given by employers, neighborhood or labor organizations, churches or community groups; instruction in basic skills such as mathematics, computers, reading and writing English, or instruction in English as a second language; or any other organized educational activity.

Respondents who indicated that they had participated in any of the above forms of education or training activities were then asked to name up to four such activities in which they had participated in the previous 12 months. Followup questions were asked about each of the named activities, including the nature of the training, reasons for taking it, and whether or not it was required by the employer. Respondents who had not participated in part-time training activities in the previous year were asked if they had *ever* participated in adult education courses or other organized training activities since completing their full-time schooling. For these respondents however, no further information about the training is available.

Organizing the data

In this analysis, young adults were grouped by age and by educational attainment into the following categories: less than a high school diploma, high school diploma or equivalent, some college only and bachelor's degree or more.[10] To adjust for varying levels of work experience, slightly different age groups were used for each of the education categories: for those without a high school diploma, 17- to 29-year-olds were examined; for those with a high school diploma only, 19- to 31-year-olds were studied; for the some-college group, age was restricted to 21 to 33 years; and for college graduates, it was limited to 21 to 33 years. (See explanations below.) It would have been preferable to investigate participation in post-school education and training activities that began during the first year after respondents had left school and had become employed. Unfortunately, the data do not provide information on exactly when individuals leave full-time schooling and begin their first work experience. Also, most of the information provided by the NHES concerns participation in adult education or training during the past 12 months, rather than since leaving full-time school.

In the subsample used here, 17-year-olds without a high school diploma at the time of the survey presumably are primarily individuals who have had about 1 year of work experience after leaving full-time school. In most States, 16 years is the earliest age at which young persons may leave school, and in some States, it is even higher. The sample used in this analysis is limited to individuals who were not enrolled as full-time students in any kind of educational program in the previous 12 months, and who said their main activity in the past 12 months was "working at a job."

Assuming that most 19-year-olds with a high school diploma graduated when they were 18 years old, they would have had about a year of work experience since leaving full-time school. By similar reasoning, 21-year-olds with some college probably have had about a year of work experience as well, on average. Finally, it is assumed that most 23-year-old college graduates who were not enrolled in school full-time in the past 12 months and whose main activity was working also have had about a year of work experience since leaving school full time. Hence, by looking at 17-, 19-, 21-, and 23-year-olds, respectively, in the educational attainment categories, less than a high school diploma, high school diploma only, some college only, and college graduates, we observe a sample of individuals each with about a year of work experience.

Although it may have been preferable to analyze the data by single years of age, sample limitations made it necessary to group the data into intervals.[11] Somewhat arbitrarily, a cutoff age of 35 years was chosen to represent about the end of the first one-third of an average person's working life. Hence, the data were grouped into 12-year intervals, using the following age and education parameters: for college graduates, the age interval is 23 to 35 years; for those with some college only, 21 to 33 years; for those with a high school diploma only, 19 to 31 years; and for those with less than a high school diploma, 17 to 29 years.

Again, preferably, each of the educational attainment groups would have roughly the same amount of work experience. If everyone in each of the groups had become employed during the first year after leaving full-time schooling and worked continuously from that point forward, the average number of years of work experience for each group would equal the mean age of the group minus the minimum age for the group. The mean ages[12] for the four groups are 30 for college graduates, 28 for those with some college only, 26 for those with a high school diploma only, and 24 for those with less than a high school diploma. Hence, under the assumption of continuous work by everyone since leaving school, each of the groups will have, on average, about 7 years of work experience.

Recent training activities

Table 1 shows the proportions of the various age/education groups that participated in adult education and training activities in the 12 months prior to the survey. Participation in such activities among young adult workers clearly increases as the level of formal educational attainment increases. As described earlier, the average amount of work experience for each group is about 7 years.

The table also shows the extent of participation among young adult workers in employment-related training.[13] As can be seen readily, only a small part of such training is taken to prepare for a new job or career. In addition, as is true with other kinds of training, workers with more formal education are more likely to participate in employment-related training, further widening the gap in skills between the less-educated and those with more formal education. Workers with a high school diploma said they had participated in employment-related training in the 12 months prior to the survey at twice the rate of those without a diploma. Similarly, workers with some college only participated in such training at nearly twice the rate of those with a high school diploma only, and at nearly 4 times the rate of workers with less than a high school diploma. Finally, 63 percent of college graduates participated in employment-related training, compared with 46 percent of workers with some college only.

Employer-required training also increases with higher levels of formal educational attainment. Only about 6 percent of young workers with less than a high school diploma, for example, participated in an employer-required training activity in the 12 months prior to the survey. Each subsequent level of educational attainment adds 5 to 6 percentage points to this participation rate. There is evidence from the NHES, however, that members of the least educated group are participating in part-time education activities to improve basic reading, writing, or mathematics skills. About 6 percent of young workers with less than a high school diploma participated in adult education activities to improve their basic skills—nearly twice the proportion of workers with a high school diploma only. If improvement in such skills serves as a prerequisite for employment-related and employer-required training, then at least some of these workers are preparing themselves accordingly.

The survey also provides information about participation in various types of employment-related education or training.[14] As we would expect, the least educated group takes or receives less training than more educated groups for most categories. The very low participation rate in computer software training among young adult workers without a high school diploma—1.6 percent—may be particularly harmful to their earnings potential, given the evidence that using a computer on the job significantly affects earnings.[15] Members of the least educated group also participated in sales and marketing training at a very low rate—1.7 percent. And while their rate of participation in technical or skilled-worker training is higher, it still is only about a third of the rate for those with a high school diploma.

Groups with more formal education—such as those with some college only and those with at least a bachelor's degree—participated in most types of employment-related training at much higher rates than those with less education. For example, while the proportion of the some-college group that participated in any type of employment-related training was nearly twice that of the high-school-only group, it was about 3 times as much for executive or management development training and computer software training. In addition, members of the some-college group participated in supervisory training, professional development training, or sales and marketing training at about twice the rate of those with a high school education only.

The gap in training between college graduates and those with some college only, while substantial, was not as great as that between the some-college group and those with a high school education only. More than two-thirds of college graduates had participated in employment-related training in the 12 months prior to the survey, while 53 percent of those with some college had done so. Interestingly, the some-college group comes close to matching the college-graduates group in technical and skilled-worker training, sales and marketing training, and quality and statistical control training. Also, the gap between these two groups of young workers in the amount of computer training they have taken is not as great as that between the some-college group and the high-school-diploma-only group. Thus, pursuing some college education beyond high school clearly increases the likelihood that workers will participate in employment-related training.

Training since leaving school

Participation in part-time adult education and training among the out-of-school population has been increasing in recent

Table 1. Percent of young adult workers participating in part-time adult education and training in the 12 months prior to the survey, by age, education, and type of training, 1990–91

Type of training	Total	Less than a high school diploma	High school diploma only	Some college only	College graduates
	17 to 35 years	17 to 29 years	19 to 31 years	21 to 33 years	23 to 35 years
Proportion ever participating in training	56.8	21.7	45.9	79.9	77
Proportion participating in prior 12 months[1]	39.6	18.5	27.1	53.4	67.2
Employment-related training	35.2	12.2	24.4	45.5	62.9
Employer-required training	14.9	6.1	11.9	19.3	24.4
Training for new job or career	4.2	1.8	4.0	4.9	4.7
Type of employment-related training taken[1]					
Executive/management development	14.0	2.8	6.5	21.3	29.2
Supervisory training	14.0	2.7	9.1	20.1	25.6
Professional development	25.3	6.9	14.7	33.4	51.1
Technical/skilled-worker training	21.4	6.3	16.7	29.4	32.8
Computer software training	11.3	1.6	6.3	17.2	22.5
Quality/statistical control	12.7	4.8	9.9	17.6	20.0
Sales and marketing training	9.2	1.7	5.9	14.0	15.9
Job health and safety training	13.0	7.3	12.6	20.5	13.9
New employee training	8.4	3.5	6.7	13.9	11.5
Other training	.7	.8	.4	1.4	1.2
Basic math/literacy training	3.1	6.0	3.2	4.3	2.1
Sample size[2]	3,005	104	750	671	967

[1] Respondents could name up to four part-time adult education or training activities in which they had participated in the 12 months prior to the survey, and each could be classified in a different education or training category. Thus, the proportions for the subcategories sum to more than the proportions for the aggregate categories. If a respondent indicated that they had taken employment-related training, they were then asked to answer "yes" or "no" to each item on a list of different types of employment-related training.

[2] The sum of the sample sizes across the age and education groups does not equal the sample size for the total for 17- to 35-year-olds because in defining the groups, some observations were excluded—for example, those without a high school diploma who were over age 29, high school graduates over age 31, and so on. (See text for more on how the groups were defined.)

NOTE: Workers are defined here as those who were not enrolled in an education or training program full time during the 12 months prior to the survey, and whose primary activity during that period was working at a job.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey, Adult Education Component, 1991.

years.[16] Data from the 1991 NHES support this conclusion, although the survey is cross-sectional and time series analysis was not performed. In 1990–91, the proportion of the out-of-school population aged 28 to 38 that had *ever* participated in any kind of adult education or training nearly matched the proportion of 39- to 49-year-olds participating in such activities (62.2 versus 65.3 percent). Moreover, the proportions for both of these groups are greater than the proportion for 50- to 60-year-olds, and all three are greater than the proportion for persons aged 61 years and older. (See table 2.) These results support the conclusion reached by other analysts[17] that participation in part-time adult education has been increasing over time.[18]

Even when the level of formal education is held constant, participation in such activities appears to be growing, particularly among college graduates. In 1990–91, 83 percent of 39- to 49-year-old college graduates had participated in part-time education or training since leaving full-time school; by contrast, 72 percent of 50- to 60-year-old college graduates had done so. Finally, just 60 percent of college graduates aged 61 years and older had participated in such activities since leaving school.[19]

Table 2 shows other evidence of increasing participation in part-time adult education and training activities as well. Among persons with less than a high school diploma, for example, 50- to 60-year-olds were less than half as likely as 39- to 49-year-olds to have ever taken such training. These results suggest that 39- to 49-year-olds in 1980–81 (most of whom were 50- to 60-year-olds by 1990–91) were less likely to participate in part-time training activities than were members of the same age cohort in 1990–91.[20]

The table also shows that persons who have achieved higher levels of formal education are more likely to have ever participated in part-time education and training activities. The evidence is especially strong for both 28- to 38-year-olds and 39- to 49-year-olds. For the other age groups, participation

increases through the first three educational attainment categories (all but college graduates). Also, the lower rates of participation among younger (17 to 27 years) and older (50 to 60 years) college graduates, relative to those with some college only, probably reflects greater use of part-time college courses by members of the some-college-only group, as many attempt to complete their college degrees.

Comparing the results of different surveys

Findings from other surveys also have documented greater participation in training activities among those with higher academic achievement. Using data from the National Longitudinal Survey of Youth (NLSY), Jonathan R. Veum examined training among young workers from 1986 to 1991, "a period in which the age range of the sample changed from 21–29 to 26–34," making it roughly comparable with the age groups used here, which range from 17 to 35 years.[21] The kinds of training asked about in the NLSY include business schools, vocational and technical institutes, correspondence courses, apprenticeships, company training, seminars outside of work, and "other."

All of the specific kinds of training referred to in the NLSY also are included in the 1991 NHES. In the latter, however, courses taken at 2- or 4-year colleges and universities are included as long as the respondents are not enrolled in a full-time course of study. To the extent that the NLSY does not capture this participation in part-time college courses, it is less comprehensive than the 1991 NHES data, and thus it should yield lower estimates of participation in education and training activities. On the other hand, the NLSY data refer to participation in training activities at any time over a 5-year period—1986 to 1991—while the NHES refers to the 12 months prior to the survey. Given such differences, caution should be used when comparing the two surveys.[22]

Data from the 1991 NHES, the NLSY, and the January 1991 Current Population Survey (CPS) show the same general trend—those who enter the work force with higher levels of formal academic achievement are more likely to participate in employment-related training activities. Table 3 compares the respective proportions participating in such activities in each of the three surveys by constructing the following ratios: the proportion of those with a high school diploma only that participated in post-school education was divided by the proportion of those with less than a high school diploma that participated in such activities; the proportion participating among those with some college only was divided by the corresponding proportion of those with a high school diploma only; and finally, the proportion participating among those with at least a bachelor's degree was divided by the proportion participating among those with some college only.

The first two rows of the table compare results from the NLSY with those from the 1991 NHES. The greatest difference in the two is that the latter shows higher ratios than does the former for the some-college/high-school-only group, as well as the college-graduates/some-college group. The difference may be attributed to the NLSY not including part-time study at community colleges, where many from these more educated groups get their training. Also, in this study, the age groups were adjusted to account for work experience, which would tend to increase rates of participation by accounting for these workers' later entry into the work force.

The last two rows of the table compare the results from the 1991 NHES with those of the January 1991 CPS. The data used

Table 2. Percent of out-of-school population that has *ever* participated in adult education or training activities by age and education level, 1990–91

Education level	17 to 27 years	28 to 38 years	39 to 49 years	50 to 60 years	61 years and older
Total, not enrolled full time[1]	50.7	62.2	65.3	52.2	40.0
Sample size	1,725	3,137	2,931	1,399	1,189
Less than a high school diploma	27.9	40.1	38.4	15.2	18.3
Sample size	165	145	131	106	222
High school diploma only	40.3	51.2	54.6	46.5	40.9
Sample size	700	1,022	911	490	413
Some college only	79.2	73.9	73.1	77.1	60.9
Sample size	476	882	760	334	214
College graduates	70.0	79.6	83.3	71.7	60.2
Sample size	384	1,088	1,129	469	340

[1]Persons who were not enrolled as full-time students in any school, training program, or other educational program in the 12 months prior to the survey.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey, Adult Education Component, 1991.

Table 3. Comparing training participation rates from the NHES with those from the NLSY and CPS

	High school diploma only relative to less than high school	Some college only relative to high school diploma	College graduates relative to some college only
Young adults from the NLSY[1]	1.8	1.3	1.1
Young adults from the 1991 NHES[2]	.2	1.9	1.4
Employed, over age 16, 1991 NHES[3]	2.4	1.7	1.4
Employed, aged 16 and older, 1991 CPS[4]	1.9	1.4	1.3

[1] In the NLSY, all respondents in each of the educational attainment categories were aged 26 to 34 in 1991. The NLSY data were obtained from Jonathan R. Veum, "Training among young adults: who, what kind, and for how long?" *Monthly Labor Review*, August 1993, pp. 27–32, table 1.

[2] The data used in these ratios are from the National Household Education Survey, Adult Education Component, 1991.

[3] The NHES data used in the computation of these ratios are for persons who were more than 16 years old at the time of the survey; the data were obtained from Teresita L. Chan Kopka and Samuel S. Peng, *Adult Education: Employment-Related Training*, NCES Report no. 94–471 (U.S. Department of Education, National Center for Education Statistics, May 1994), table 2.

[4] For the CPS, the data are for all employed persons, 16 years and older, who took skill-development training at their current job. The data were obtained from Alan Eck, "Job-related education and training: their impact on earnings," *Monthly Labor Review*, October 1993, pp. 21–38, table 8.

NOTE: Figures show the ratio of the proportions participating in education or training for the given categories. Thus, in the first data column, the figures show the proportion of those with a high school diploma only divided by the proportion with less than a high school diploma—for each of the surveys and the given universe.

here are for all workers who were employed and 16 years or older when the surveys were conducted.[23] Both sets of data show greater participation in education and training activities among the more educated. The NHES shows substantially higher participation rates for high school graduates relative to those with less than a high school diploma; and to a lesser extent, the NHES also shows higher rates for the some-college group relative to those with a high school diploma only. It should be noted that the NHES data refer to participation in the 12 months prior to the survey, while the CPS data refer to skill-improvement training taken over the course of the current job, which may account for the slight differences (in magnitude not direction) between the two.

Summary

The 1991 NHES provides a useful addition to our knowledge of the extent to which U.S. workers continue their learning and skill-development activities after leaving formal full-time schooling. A substantial proportion of these workers participated in part-time adult education activities in 1990–91, and the proportion appears to have grown over time, improving the overall quality of the work force.

The NHES data confirm that among the young adult labor force, participation in part-time adult education, including part-time employment-related training, is higher among those with higher levels of formal academic achievement. In this study, the data were grouped by age and educational attainment, using the following four categories: non-high school graduates (17 to 29 years), high school graduates only (19 to 31 years), those with some college only (21 to 33 years), and college graduates (23 to 35 years). The age categories varied for each education category in an attempt to adjust for average years of work experience. The difference in the use of part-time employment-related training between those with at least some college and those with a high school education or less was particularly large in the NHES. Moreover, only a small part of this difference is compensated for by a higher use of part-time education in basic literacy or math skills among the least educated group. These findings underscore the importance to young workers of attaining at least some formal academic education beyond high school.

The NHES data also provide information on the type of employment-related training taken by young workers. For certain types of training, young adult workers with less than a high school diploma participate at very low rates. While this might be expected for categories such as executive and management development training and supervisory training, it is somewhat surprising that only about 6 percent of these low-educated workers participated in any training required by their employer, and less than 2 percent participated in any computer software training, or any sales and marketing training. Only about 6 percent participated in technical or skilled-worker training.

Clearly there are substantial labor market advantages to attaining at least some college education. Both college graduates and workers with some college only, for example, participated in technical and skilled-worker training, sales and marketing training, and statistical and quality control training at roughly the same rate. In addition, the proportion of the some-college group that participated in computer software training was nearly 3 times that of those with a high school diploma only.

Finally, the findings of this study generally agree with similar studies using the NLSY and the CPS.[24] The NHES data, compared with the NLSY data, show somewhat higher tendencies to participate in education and training among young adult

workers with some college only versus those with a high school diploma only, and among college graduates compared with those having just some college. The discrepancy may be partly because the NLSY does not include education and training activities taken at community colleges, while the NHES does include such training, and partly because an adjustment was made to the NHES data to control for average years of work experience. □

Footnotes

ACKNOWLEDGMENT: The author thanks Tom Joyce and Fred Siskind for helpful comments on an early draft of this article.

[1] See Alan Eck, "Job-related education and training: their impact on earnings," *Monthly Labor Review*, October 1993, pp. 21–38. See also *Labor Force Statistics Derived From the Current Population Survey, 1948–87*, Bulletin 2307 (Bureau of Labor Statistics, 1988), table C-22, pp. 844–45. Although data on educational attainment of the *labor force* are available only from 1970, data on the education level of the *population* are available from 1940 and clearly show an increasing trend, suggesting that the labor force also has become more educated since 1940. See Robert Kominski and Andrea Adams, *Educational Attainment in the United States: March 1993 and 1992*, Current Population Reports, P20-476 (Bureau of the Census, 1994), table 17, pp. 93–95.

[2] See John Bound and George Johnson, "Changes in the Structure of Wages in the 1980s: An Evaluation of Alternative Explanations," *American Economic Review*, June 1992, pp. 371–92. See also *Handbook of Labor Statistics*, Bulletin 2340 (Bureau of Labor Statistics, 1989), table 85, p. 320, for historical average weekly earnings in current and constant (inflation-adjusted) dollars.

[3] For examples, see Lisa M. Lynch, ed., *Training and the Private Sector: International Comparisons* (Chicago, University of Chicago Press, 1994); Jonathan R. Veum, "Training among young adults: who, what kind, and for how long?" *Monthly Labor* Review, August 1993, pp. 27–32; and John Bishop, *Employer Training & Skill Shortages: A Review of the State of Knowledge*, working paper 91–32 (Ithaca, NY, Cornell University, New York State School of Industrial and Labor Relations, Center for Advanced Human Resource Studies, 1991).

[4] For a comprehensive statement on data needs, see Lisa M. Lynch, "A Needs Analysis of Training Data: What Do We Want, What Do We Have, Can We Ever Get It?" (mimeo., Tufts University, 1995).

[5] Burt Barnow, Linda Giannarelli, and Sharon Long, *Training Provided by Private Sector Employers*, report prepared for the Office of the Assistant Secretary for Policy, U.S. Department of Labor (Washington, DC, The Urban Institute, May 1996).

[6] For an example of an analysis that *does* use the 1991 NHES and reports similar findings to those presented here, see Teresita L. Chan Kopka and Samuel S. Peng, *Adult Education: Employment-Related Training*, NCES Report 94–471 (U.S. Department of Education, National Center for Education Statistics, May 1994).

[7] For a brief description of the NHES, see *National Household Education Survey: An Overview*, NCES Report 98-246 (U.S. Department of Education, National Center for Education Statistics, May 1998); also, Roslyn Korb, Kathryn Chandler, and Jerry West, *Adult Education Profile for 1990–91*, NCES Report 91–222 (U.S. Department of Education, National Center for Education Statistics, September 1991). For a more comprehensive report on the survey, see *An Overview of the National Household Education Survey: 1991, 1993, 1995, 1996*, NCES Report 97–448 (U.S. Department of Education, National Center for Education Statistics, May 1997).

[8] As reported by many researchers, including Bound and Johnson, in "Structure of Wages," 1992.

[9] For more information on the 1991 NHES and subsequent surveys, see sources cited in footnote 7 above.

[10] The high school degree group includes those who also had some vocational or technical training after high school but no college, while the some-college group includes those who have an associate's degree.

[11] Because most of the data on post-school education and training activities concern the prior 12 months, limiting the analysis to single years (17, 19, 21, and 23 years) would allow for comparisons to be made of workers in their first year after leaving full-time school and working at a job. Unfortunately, however, the sample was too small, and the age groups were expanded to 12-year intervals.

[12] Rounded to the nearest whole year.

[13] Employment-related training includes any courses that respondents said they were taking mainly "to improve, advance, or keep up to date on [their] current job"; or those taken "to train for a new job or a new career." Respondents who answered "yes" to the question, "Did you also have any employment- or career-related reason for taking [the training]?" also are included in this measure.

[14] If respondents indicate that they have taken some kind of employment-related training, they are then given a list of various kinds of such training and asked to answer "yes" or "no" to each item on the list.

[15] The wording in the 1991 NHES for this type of training was "Word processing or computer software training." For some evidence of the effect on earnings of lacking these skills, see Alan B. Krueger, "How Computers Have Changed the Wage Structure: Evidence from Microdata, 1984–89," *Quarterly Journal of Economics*, February 1993, pp. 33–66.

[16] See Norman Bowers and Paul Swaim, "Recent Trends in Job Training," *Contemporary Economic Policy*, January 1994, pp. 79–88.

[17] Bowers and Swaim came to the same conclusion using 1983 and 1991 Current Population Survey data.

[18] For example, the proportion for the 39- to 49-year-old group in 1990–91 was 65.3 percent. In 2000–2001, when members of the group will be aged 50 to 60, the proportion will necessarily be at least as great as it was in 1990–91, and probably greater. This means that 50- to 60-year-olds in 2001–2002 will have participated in part-time education and training activities at a greater rate than did their predecessors in 1990–91. A similar case can be made for other age groups as well.

[19] Recall that the NHES is *not* a longitudinal survey and thus some caution should be used when interpreting the data in this way; there may be some upward bias. Consider, for example, that particularly among older workers, there will be persons who will attain college degrees during the intervening years from 1990–2001, and these individuals will most likely have done so by attending education and training on a part-time basis. Thus, we would expect to observe greater rates of participation among older college graduates. The fact that we do not (at least not beyond the 17- to 27-year-old group), suggests that the tendency for participation in part-time adult education to increase over time has been strong enough to more than offset this potential bias in the data as it is presented here.

[20] These data may be downward biased to an extent. Some 39- to 49-year-olds without a high school diploma in 1990–91, for example, may attain one by the time they enter the 50- to 60-year-old cohort in 2001–2002, thus putting downward pressure on the number of 39- to 49-year-olds without high school diplomas. Similar reasoning may be applied to other groups as well. In addition, some recall bias may exist in the evidence from these data that post-school participation in adult education and training is increasing. Older age cohorts are more likely to fail to recall participation in such activities because, on average, they were involved in them longer ago. Recall problems would have to be extremely large, however, to lead to different conclusions because younger age cohorts said they participated at such high rates relative to older age cohorts. Even if comparisons were limited to 28- to 38-year-olds and 39- to 49-year-olds, where recall differences would

tend to be minimal, the conclusions hold. Finally, the structure and sequencing of questions in the 1991 NHES should minimize recall difficulties regarding this issue. Respondents are first asked, "Please tell me whether or not you have been involved in any of these *in the past 12 months*," after which they are asked to respond to each item in a list of possible education and training activities. If the respondent answers "no" to every item on the list, they immediately are asked if they have *ever* participated in any such activities, using the same list, which still should be fresh in their minds from the previous question.

[21] Jonathan R. Veum, "Training among young adults: who, what kind, and for how long?" *Monthly Labor Review*, August 1993, pp. 27–32. The National Longitudinal Survey of Youth (NLSY) is part of the larger National Longitudinal Surveys (NLS); it collects data on young men and women who were 14 to 22 years of age in 1979, interviewing the same respondents annually since then. According to Veum, the NLSY "provides some of the most comprehensive data currently available on training." For more information about the NLS, see *BLS Handbook of Methods*, Bulletin 2490, April 1997, pp. 50–56.

[22] Nonetheless, Veum reported that 38 percent of persons who were aged 21 to 29 years in 1986 received training at some time during the 1986–91 period, roughly comparable to the 35-percent figure for 17- to 35-year-olds presented here.

[23] Although the focus of the present study is on *young* adult workers, the comparison of the NHES with the CPS uses *all* workers, mainly for the sake of convenience—these results were taken from other studies that used all workers. (The NHES includes workers who were older than age 16 when the survey was conducted; the CPS data are for those 16 years and older.) As can be seen from the second and third rows of the table, the NHES shows similar results for both young workers and all workers. For the NHES, see Chan Kopka and Peng, *Adult Education*; for the CPS, see Eck, "Job-related education and training," table 8.

[24] See, for example, Veum, "Training among young adults"; Eck, "Job-related education and training"; as well as others cited above.

Fax-on-demand available

Users of data from the Bureau of Labor Statistics can request a fax of news releases, historical data, and technical information 24 hours a day, 7 days a week from the Bureau's fax-on-demand system.

Users can receive news releases of major economic indicators (see schedule on back cover) at 8:45 a.m. on the morning the data are released. The number to obtain data from the national office is:

(202) 606-6325

Use a touch-tone telephone and follow the voice instructions for entering document codes and your fax telephone number. The fax-on-demand catalog, containing a list of available documents and codes, can be obtained by entering code 1000. You may request up to four documents with each call. Faxes are sent immediately following the request. If your fax line is busy, the system attempts to send the requested material four times before disconnecting.

GDP components' contributions to U.S. economic growth

Rebasing GDP and its components on chained 2001 dollars enhances the role of services as a contributor to economic growth, while diminishing the significance of private investment; only minor effects are seen on the contributions of net foreign trade and government expenditures

Thomas Boustead

Recently, the Bureau of Labor Statistics projected that U.S. real gross domestic product (GDP) will exceed $8.5 trillion by 2006, an increase of more than $1.6 trillion during the 1996–2006 period.[1] In the BLS economic projection, real GDP and its components were stated in chained 1992 dollars, as is typically done for real output measures.[2] However, the BLS projection employs a terminal year 14 years from the 1992 base year used for the chained dollars, and because relative prices in the economy can change substantially over 14 years, the question arises as to whether some other base year would be more appropriate. This article explores the issue by rebasing from chained 1992 dollars to chained 2001 dollars. While this rebasing does not change calculated growth rates, it does affect calculations of how the various GDP components contribute to overall GDP growth.

Economic growth can be analyzed from several vantage points, such as the growth rates of the various GDP components or their contributions to growth. Each measure has advantages, and certain weaknesses as well. Growth rates, for example, highlight the dynamic sectors of the economy. But often the fastest growing components of GDP are the smaller ones. These components will contribute proportionately less to the overall increase in GDP because their growth rates apply to small initial values.

Conversely, the *contributions* to growth of the GDP components—defined for each component as the ratio of the change in that component over the projection period to the total change in GDP over the period, expressed as a percentage—pinpoint those components most responsible for additions to GDP. However, with this approach, some imprecision results: upon aggregation of the component percentages, a residual amount remains.

Analysis in chained 1992 dollars

Table 1 compares the 1996–2006 projected growth rate, the expected percent distributions of GDP, and the projected contributions of various components of GDP to its growth. According to the table, those components of GDP with the fastest projected growth rates involve foreign trade. Exports of goods are expected to advance 8.0 percent annually over the projection period, while overall exports are anticipated to grow 7.4 percent annually. Countering the growth of exports, the Bureau projects imports of goods to expand at a 6.9-percent annual rate from 1996 to 2006. Total imports would register a 6.4-percent annual advance for the period.

Growth rates for international trade describe a U.S. economy progressively integrating with the world economy. Nonetheless, on net, the foreign sector does not significantly contribute to the additional GDP produced for the projection period, because imports, more or less, offset exports.[3] Only 3.1 percent of the projected contribution to total GDP growth for 1996–2006 is related to net exports.

Thomas Boustead is an economist formerly with the Office of Employment Projections, Bureau of Labor Statistics.

Table 1. Major components of real GDP, 1996 and projected to 2006, in chained 1992 dollars

Component	Billions of chained 1992 dollars			Growth rate		Percent distribution			Contribution to GDP growth			
									Change		Percent distribution	
	1986	1996	2006	1986–96	1996–2006	1986	1996	2006	1986–96	1996-2006	1986–96	1996–2006
GDP	5,489.9	6,911.0	8,539.1	2.3	2.1	100.0	100.0	100.0	1,421.1	1,628.1	100.0	100.0
Personal consumption	3,708.7	4,690.6	5,772.9	2.4	2.1	67.6	67.9	67.6	982.0	1,082.3	69.1	66.5
Durables	448.4	611.5	867.3	3.2	3.6	8.2	8.8	10.2	163.1	255.8	11.5	15.7
Nondurables	1,215.9	1,441.9	1,683.8	1.7	1.6	22.1	20.9	19.7	226.0	242.0	15.9	14.9
Services	2,041.4	2,638.2	3,239.8	2.6	2.1	37.2	38.2	37.9	596.8	601.6	42.0	36.9
Private investment	813.7	1,060.2	1,469.7	2.7	3.3	14.8	15.3	17.2	246.5	409.6	17.3	25.2
Nonresidential	548.5	766.2	1,132.0	3.4	4.0	10.0	11.1	13.3	217.7	365.8	15.3	22.5
Structures	203.3	189.6	210.8	–.7	1.1	3.7	2.7	2.5	–13.6	21.2	–1.0	1.3
Producers' durables	345.9	578.3	935.6	5.3	4.9	6.3	8.4	11.0	232.5	357.2	16.4	21.9
Residential	257.0	276.8	302.7	.7	.9	4.7	4.0	3.5	19.8	25.9	1.4	1.6
Exports	362.2	826.1	1,686.0	8.6	7.4	6.6	12.0	19.7	463.9	859.9	32.6	52.8
Goods	243.6	609.3	1,313.2	9.6	8.0	4.4	8.8	15.4	365.7	703.9	25.7	43.2
Services	120.3	218.0	389.7	6.1	6.0	2.2	3.2	4.6	97.7	171.7	6.9	10.5
Imports	526.1	940.3	1,749.8	6.0	6.4	–9.6	–13.6	–20.5	414.2	809.5	–29.1	–49.7
Goods	425.5	796.8	1,550.3	6.5	6.9	–7.8	–11.5	–18.2	371.3	753.5	–26.1	–46.3
Services	100.2	144.1	211.5	3.7	3.9	–1.8	–2.1	–2.5	43.9	67.4	–3.1	–4.1
Net exports	–163.9	–114.2	–63.8	–3.5	–5.7	–3.0	–1.7	–.7	49.7	50.4	3.5	3.1
Government expenditures	1,135.0	1,271.8	1,400.6	1.1	1.0	20.7	18.4	16.4	136.8	128.8	9.6	7.9
Federal	518.4	468.2	399.4	–1.0	–1.6	9.4	6.8	4.7	–50.2	–68.8	–3.5	–4.2
Defense	393.4	314.9	257.3	–2.2	–2.0	7.2	4.6	3.0	–78.5	–57.6	–5.5	–3.5
Nondefense	125.2	152.8	141.5	2.0	–.8	2.3	2.2	1.7	27.7	–11.4	1.9	–.7
State and local	617.0	804.5	1,005.9	2.7	2.3	11.2	11.6	11.8	187.5	201.5	13.2	12.4
Residual	–	–	–	–	–	–	–	–	–	–	–	–
Sector level[1]	–	–	–	–	–	–.1	.0	–.5	–	–	.4	–2.6
Detailed level[2]	–	–	–	–	–	.1	.2	–.5	–	–	.8	–3.9

[1] GDP – (personal consumption expenditures + private investment + net exports + government expenditures).
[2] GDP – (durables + nondurables + services + nonresidential structures + producers' durable equipment + exports (goods + services) + imports (goods + services) + defense + nondefense + State & local government expenditures).

In fact, the trade in goods is not expected to contribute to growth for the period. Although the 8.0-percent growth rate of goods exports is projected to exceed that of imports (6.9 percent), the lower growth rate for imports applies to a larger base ($1,550.3 billion) than that for exports ($1,313.2 billion). If, despite rapidly expanding exports and imports, net exports will not significantly augment projected GDP, from where will the additions to GDP come?

The answer is that traditional sources are expected to continue to dominate the economy's growth over the 1996–2006 period. Personal consumption expenditures are projected to contribute two-thirds of the growth of GDP for the period. Historically, consumption expenditures have composed about two-thirds of GDP itself. Within personal consumption, a shift in emphasis appears to be in progress, at least for expenditures on goods.

Under the BLS projection, personal expenditures on durable goods are anticipated to account for 15.7 percent of the increment to total GDP for the 1996–2006 period. By comparison, the contribution to growth of personal expenditures on nondurable goods is expected to amount to 14.9 percent. Here, the relatively rapid growth (3.6 percent annually) of durable goods, as opposed to nondurables (1.6 percent annually), underlies the shift. Within the durable goods component, the Bureau projects that technology-laden purchases, such as computers, will grow the fastest over the projection period.

While durable goods are expected to grow faster from 1996 to 2006 than are other components of personal consumption, spending on durables will not supply the largest contribution to growth in this category. Personal spending on services is anticipated to contribute 36.9 percent of the growth in GDP for the 1996–2006 period, only slightly less than its percentage of GDP (37.9 percent in 2006). Although the services component is projected to grow at the same rate as overall GDP (2.1 percent annually), this moderate growth rate applies to the single most significant component of GDP.

In sum, then, the contribution to growth of personal consumption is expected to be dominated by expenditures on services. Because spending on nondurables includes several subsistence-type purchases, such as food and clothing, this component's contribution to growth is anticipated to be constrained by a deceleration in population growth during the

projection period. Spending on durables, however, would compensate for a portion of the tepid expenditure growth of nondurables.

Private investment is projected to follow personal consumption as a leading source of growth for the 1996–2006 period, providing about one-quarter (25.2 percent) of the addition to GDP. The most rapidly expanding component of private investment is expected to be expenditures on producers' durable equipment, which is anticipated to grow 4.9 percent annually from 1996 to 2006. With that growth rate, this component will contribute 21.9 percent of the addition to GDP for 1996–2006. Not only is producers' durable equipment's share of private investment large, having made up more than one-half of private investment each year since 1986, but also, it includes such briskly evolving technologies as computers and communications equipment.

The remainder of private investment involves expenditures on nonresidential structures and residential investment.[4] With a 1.3-percent and a 1.6-percent contribution, respectively, neither component is expected to contribute substantially to the projected growth of GDP. To a degree, investment in nonresidential structures is still recovering from a period of overbuilding in the 1980s. As for residential investment, demographic factors are anticipated to operate to retard the growth of this component.

Expenditures by the three levels of government—Federal, State, and local—account for the remainder of GDP. Much of the Federal Government's spending involves transfer payments. Because the National Income and Product Accounts do not record transfers as expenditures for purposes of calculating GDP, the overall contribution to growth of the Federal government is projected to be comparatively small. Moreover, the Federal Government has been undergoing a period of retrenchment in the recent past. The Bureau projects Federal defense spending to decline 2.0 percent annually from 1996 to 2006, while nondefense spending will decline 0.8 percent annually. Accordingly, for the projection period, the Federal Government has a negative contribution of –4.2 percent to the increment of GDP.

Unlike the Federal Government, State and local government is expected to contribute positively to GDP growth for the projection period. The Bureau projects that expenditures by State and local governments will grow 2.3 percent annually from 1996 to 2006. At this rate, the sector will contribute 12.4 percent of the growth of overall GDP for the period.

Analysis in chained 2001 dollars

Nominal, or current-dollar, GDP represents the aggregate of expenditures on currently produced final goods and services, as determined by applying current prices to output. From one year to the next, current-dollar GDP changes because the amount of output changes or the price of output changes (or both). At least in principle, a change in current-dollar GDP can be directly measured. Difficulties arise, however, when an attempt is made to separate out that portion of the change in current-dollar GDP which represents just the change in the quantity of output, so-called real GDP.

A quantity index must be employed to evaluate changes in real GDP. In determining this quantity index, appropriate price weights must be selected for weighting together (that is, aggregating) the detailed pieces of output that compose GDP or one of its components. Formerly, a base year was chosen, and base-year prices were employed as weights. But that weighting method led to a substitution bias in the index.

When faced with a relative decline in the price of a commodity, consumers will tend to substitute that commodity for other, more expensive ones. As a consequence, those components of GDP with the fastest output growth tend to have the lowest (or even negative) price growth over time. Conversely, components with slow output growth tend to have faster price growth. This bargain hunting, then, is the source of the substitution bias. Subsequent to the base year, aggregation using base-year price weights, instead of more current prices, places their relatively heavier earlier price weight on those components whose output grows the most rapidly. Aggregation with base-year prices tends, therefore, to overstate growth subsequent to the base year. For analogous reasons, fixed base-year price weights tend to understate growth prior to the base year. So simply updating the base year does not resolve the problem.

Currently, the quantity index employs a chain weighting method.[5] The chained quantity index utilizes as weights a geometric average of annual prices between the base year and the terminal year. This technique incorporates the pattern of price changes over time into the price-weighting scheme and so alleviates the substitution bias.

The chained quantity index is just a number, while contributions to growth require component values denominated in dollars. The real value of GDP and its components, in chained 1992 dollars, can be derived by multiplying the component's chained quantity index for a particular year by its 1992 current-dollar value. However, aggregating the resultant chained dollar components leads to a residual, especially with long-term forecasts. Basically, as noted, the underlying chained quantity index employs average annual prices throughout the projection period as weights, while chained 1992 dollars utilize both these average prices and 1992 prices as weights.[6] Close to the base year, average annual prices closely approximate 1992 prices, but over time, they will diverge from 1992 prices as the structure of the economy evolves. Accordingly, the components of GDP will become progressively more nonadditive, and a growing residual will appear when they are summed to form GDP.

The period for the most recent BLS projection spans 1996 to 2006. Accordingly, the terminal year is 14 years from the

base year used when GDP components are specified in chained 1992 dollars. Presumably, a base year somewhere in the middle of the period would provide base-year prices more consistent with average annual prices for the entire period.

To accomplish this result, projected values of GDP and its components for 2001 were obtained in current dollars and in chained 1992 dollars. The projected quantity index for 2001 was then obtained by dividing a component's 2001 value in chained 1992 dollars by its current-dollar value for 1992. Next, the resultant implied quantity indexes for 1996 and 2006 were rebased by setting the 2001 implied quantity indexes equal to 1.00. Finally, the rebased quantity indexes were multiplied by the projected 2001 current-dollar values of the components to derive approximate chained 2001 dollar values for the 1996 and 2006 components.[7] Contributions to growth could then be calculated. (See table 2.)

As expected, the use of a more contemporaneous base year reduces the residual resulting from subtracting the sum of the components of GDP from GDP itself. At the sector level, the residual got closer to zero, moving from –2.6 percentage points (with 1992 as base year) to –0.9 percentage point (with 2001 as base year.)[8] At the most detailed component level, the residual also got closer to zero, going from –3.9 percentage points to 1.5 percentage points.[9]

Rebasing to chained 2001 dollars yields results similar to, if less dramatic than, the earlier analysis in chained 1992 dollars. Personal consumption expenditures still provide the largest contribution to growth, 67.8 percent. Prior to rebasing, the contribution to growth of personal consumption declined 2.6 percentage points for the 1996–2006 period, compared with the 1986–96 period (66.5 percent versus 69.1 percent for the respective periods). Rebasing lessens the decline to 1.3 percentage points (67.8 percent in chained 1992 dollars for 1996–2006 versus 69.1 percent in chained 2001 dollars for 1986–96).

More noteworthy, the relative contributions to growth of the various components of personal consumption do not display as significant a shift when rebased to chained (2001) dollars. For example, without rebasing, durable goods contribute 15.7 percent to GDP growth for the projection period, while rebased durables contribute 13.4 percent. Accordingly, the rebased figure more closely accords with the 11.5-percent contribution to growth of consumer durables for the

Table 2. Major components of real GDP, 1996 and projected to 2006 in chained 2001 dollars

Component	Billions of chained 2001 dollars		Projected growth rate	Percent distribution		Contribution to GDP growth	
						Change	Percent distribution
	1996	2006	1996–2006	1996	2006	1996–2006	1996–2006
GDP	8466.3	10460.8	2.1	100.0	100.0	1994.5	100.0
Personal consumption	5856.9	7208.3	2.1	69.2	68.9	1351.4	67.8
Durables	637.9	904.7	3.6	7.5	8.6	266.8	13.4
Nondurables	1726.8	2016.6	1.6	20.4	19.3	289.8	14.5
Services	3494.1	4290.9	2.1	41.3	41.0	796.7	39.9
Private investment	1156.9	1603.8	3.3	13.7	15.3	446.9	22.4
Nonresidential	795.8	1175.8	4.0	9.4	11.2	379.9	19.0
Structures	235.5	261.8	1.1	2.8	2.5	26.3	1.3
Producers' durables	564.6	913.4	4.9	6.7	8.7	348.8	17.5
Residential	344.7	376.9	.9	4.1	3.6	32.2	1.6
Exports	854.3	1743.5	7.4	10.1	16.7	889.2	44.6
Goods	585.2	1261.2	8.0	6.9	12.1	676.0	33.9
Services	271.0	484.5	6.0	3.2	4.6	213.5	10.7
Imports	978.2	1820.3	6.4	–11.6	–17.4	842.1	–42.2
Goods	802.8	1562.0	6.9	–9.5	–14.9	759.2	–38.1
Services	177.2	260.2	3.9	–2.1	–2.5	83.0	–4.2
Net exports	–124.6	–69.6	–5.7	–1.5	–.7	55.0	2.8
Government expenditures	1579.4	1739.3	1.0	18.7	16.6	159.9	8.0
Federal	601.8	513.4	–1.6	7.1	4.9	–88.4	–4.4
Defense	403.0	329.3	–2.0	4.8	3.1	–73.7	–3.7
Nondefense	198.9	184.1	–.8	2.3	1.8	–14.8	–.7
State and local	980.7	1226.3	2.3	11.6	11.7	245.6	12.3
Residual							
Sector level	–	–	–	.0	–.2	–	–.9
Detailed level	–	–	–	.0	.3	–	1.5

[1] GDP – (personal consumption expenditures + private investment + net exports + government expenditures).
[2] GDP – (durables + nondurables + services + nonresidential structures + producers' durable equipment + exports (goods + services) + imports (goods + services) + defense + nondefense + State & local government expenditures).

1986–96 period. Conversely, rebasing has a less pronounced effect on nondurable goods, with the contribution of nondurables to growth for 1996–2006 in chained 2001 dollars being only 0.4 percentage point lower than the contribution in chained 1992 dollars.

By contrast, rebasing from chained 1992 to chained 2001 dollars enhances the significance of the services component's contribution to growth. When calculated using chained 1992 dollars, the contribution to growth of services falls 5.1 percentage points (from 42.0 percent to 36.9 percent) for 1996–2006, compared with the preceding 10 years. Rebasing the projection period to chained 2001 dollars reduces this decline to 2.1 percentage points (from 42.0 percent for 1986 to 1996 in chained 1992 dollars to 39.9 percent for 1996–2006 in chained 2001 dollars) and so accords more closely with the prominent role played by the services sector as a source of GDP growth in recent decades.

Unlike the situation with personal consumption, rebasing diminishes the contribution of private investment to GDP growth. As noted earlier, before rebasing, private investment contributed 25.2 percent of the growth in GDP for the projection period. After rebasing, the contribution of private investment stands at 22.4 percent. The source of this reduction can be isolated in producers' durable equipment: the contribution of this component to GDP growth for the period 1996–2006 declines from 21.9 percent to 17.5 percent under a rebasing to chained 2001 dollars. In contradistinction, neither investment in nonresidential structures (1.3 percent) nor residential investment (1.6 percent) shows any change in contribution to growth for the projection period due to rebasing.

Rebasing from chained 1992 to chained 2001 dollars has only minor effects on the contributions to growth of net foreign trade and government expenditures for the 1996–2006 period. The contribution of net exports declines by only 0.3 percentage point as a result of rebasing, while the contribution of government declines only 0.1 percentage point. In sum, then, rebasing to 2001 chained dollars modestly reemphasizes the importance of personal consumption, especially the role of services. By contrast, while private investment remains a major contributor to growth, rebasing diminishes its significance somewhat. □

Footnotes

[1] See Thomas Boustead, "The U.S. Economy to 2006," *Monthly Labor Review*, November 1997, pp. 6–22.

[2] See, for example, "BEA Current and Historical Data" (Table 1.2), *Survey of Current Business*, April 1998, p. D2.

[3] Percent distributions show imports as a negative value, because these amounts displace expenditures on U.S. output and so reduce GDP.

[4] Private investment also includes changes in business inventories. This component will not be examined, however, as it is generally a small fraction of private investment and does not lend itself to the rebasing technique discussed subsequently.

[5] See "Preview of the Comprehensive Revision of the National Income and Product Accounts: BEA's New Featured Measures of Output and Prices," *Survey of Current Business*, July 1995, pp. 31–38.

[6] For a discussion of chain weighting and the rebasing technique employed in this article, see "BEA's Chain Indexes, Time Series and Measures of Long-Term Economic Growth," *Survey of Current Business*, May 1997, pp. 58–68.

[7] *Ibid.*

[8] The residual is equal to GDP, less the sum of personal consumption expenditures, private investment, net exports, and government expenditures.

[9] The residual in this case is equal to GDP, less the sum of durables, nondurables, services, nonresidential structures, producers' durable equipment, exports of goods and services, imports of goods and services, defense spending, nondefense spending, and State and local government expenditures.

Workplace alcohol-testing programs: prevalence and trends

Although testing for illicit drugs is more prevalent than alcohol testing, results from two nationwide surveys reveal that alcohol testing of employees is on the rise

Tyler D. Hartwell, Paul D. Steele, and Nathaniel F. Rodman

Since the beginning of the industrial era, employers have been concerned about the costs and consequences of inappropriate alcohol consumption by workers on and off the job. "By far the most common of the drugs that can affect work performance is ethanol (alcoholic beverages)," according to the Institute of Medicine.[1] Many studies have shown that both heavy drinking over time and the misuse of alcohol in safety-sensitive situations have had significant negative effects on worker productivity and health, and on employer costs and profits.[2] As a consequence, several strategies have emerged to control this behavior. Modern interventions include occupational alcoholism programs and their successors; employee assistance programs, health promotion programs, and education and training efforts.

In the 1980s, impairment testing programs also became a popular workplace method to address substance misuse.[3] Testing programs are primarily intended to detect the use of illicit drugs, but also are used in many worksites to detect inappropriate ethanol use among employees.

This article describes the prevalence and characteristics of alcohol-testing programs in U.S. worksites. The data are derived from two national prevalence surveys of worksites. These surveys were conducted in 1993 and 1995 with support from the National Institute on Drug Abuse. We present national prevalence estimates of alcohol-testing programs for job applicants and current employees. Prevalence is presented by worksite size (number of employees), type of industry, and census region. For programs that test current employees, these estimates are given for both 1993 and 1995. We then compare the prevalence of alcohol- and drug-testing programs for applicants and current employees in 1995. We also describe employee and worksite characteristics by alcohol-testing prevalence at the worksite. Finally, we present alcohol-testing prevalence by type of testing program, testing method, and organizational unit responsible for testing. (For a description of the methodology, see appendix.)

Tyler D. Hartwell is a senior statistician and Nathaniel F. Rodman is a research statistician at the Research Triangle Institute, Research Triangle Park, North Carolina. Paul D. Steele is associate professor, Department of Sociology, University of New Mexico, Albuquerque, New Mexico.

Background

A vast amount of literature has consistently documented the negative effect of alcohol use on production costs and worker and public safety. Research indicates that chronic and situational misuse of alcohol is positively associated with absenteeism,[4] job turnover,[5] industrial accidents,[6] poor job performance, lack of self-direction, poor interpersonal relations,[7] lower levels of job satisfaction,[8] theft, vandalism, and negative work behaviors.[9]

Historically, employers have relied on supervisors to identify alcohol misusers. Some of the telltale signs are: deterioration of job performance, poor work habits, antisocial behavior, accidents, absenteeism, and a host of other incidents that could cause management to inquire about alcohol misuse.[10] These approaches have their shortcomings, such as the reluctance of supervisors to monitor and intervene with alcohol-related behaviors,[11] their tendency to cover up the alcohol misuse of workers under their supervision,[12] and their failure to handle the reactive nature of alcohol misusers. Many managers believe that alcohol testing is a valuable approach to controlling the workplace consequences of chronic and situational alcohol misuse. One reason for this is

Table 1. National estimates of alcohol testing among private nonagricultural worksites by size, industry, and census region, 1995

[In percent]

Characteristic	Worksites that test—				Government regulation requires testing, 1995[2]
	Applicants	Current employees		Applicants and/or employees[1]	
	1995	1993	1995	1995	
All worksites	21.7	20.3	[3]28.4	36.0	31.7
	(1.4)	(1.0)	(1.5)	(1.6)	(2.5)
Worksite size					
50–99 employees	19.2	15.8	[3]25.0	31.4	33.7
	(2.4)	(1.6)	(2.6)	(2.8)	(5.1)
100–249 employees	19.7	19.3	[3]26.8	33.6	26.2
	(2.3)	(1.6)	(2.5)	(2.7)	(3.9)
250–999 employees	26.5	28.4	34.1	42.9	33.8
	(3.0)	(2.0)	(3.2)	(3.3)	(4.9)
1,000 employees or more	33.3	37.5	40.0	55.2	38.3
	(5.0)	(3.5)	(5.2)	(5.6)	(6.1)
Industry					
Manufacturing	33.7	25.1	[3]38.1	49.5	24.3
	(2.8)	(1.9)	(2.8)	(2.9)	(3.5)
Wholesale/retail	19.4	18.0	26.3	33.1	37.3
	(3.5)	(2.5)	(3.9)	(4.1)	(7.4)
Communications, utilities, and transportation	30.3	32.3	[3]47.4	52.7	67.7
	(4.1)	(3.0)	(4.6)	(4.7)	(6.5)
Finance, insurance, and real estate	5.8	6.8	7.3	11.0	11.6
	(1.4)	(1.3)	(2.3)	(2.5	(6.0)
Mining and construction	29.3	26.6	[3]39.0	45.5	46.3
	(4.1)	(3.4)	(4.6)	(4.8)	(6.4)
Services	13.3	16.1	20.2	26.5	21.4
	(2.3)	(1.7)	(2.7)	(3.1)	(5.3)
Region					
Northeast	19.2	11.7	[3]20.1	27.2	39.2
	(3.1)	(1.6)	(2.9)	(3.4)	(7.1)
Midwest	24.5	21.0	27.3	36.0	26.3
	(2.7)	(2.0)	(2.8)	(3.1)	(4.0)
South	19.2	23.2	[3]37.9	41.9	32.7
	(2.3)	(1.7)	(2.9)	(3.0)	(4.1)
West	24.7	23.2	22.3	34.7	31.3
	(3.4)	(2.5)	(3.1)	(3.8)	(5.9)

[1] Worksites that test applicants only, current employees only, and both applicants and current employees. Columns 1 through 4 are not exclusive categories.

[2] Percent of worksites that test for alcohol in which Government regulation requires testing.

[3] Difference between 1993 and 1995 is significant at the .05 level.

NOTE: Data are based on worksites with 50 or more employees.

Data in parentheses represent the standard error.

the apparently objective, scientific nature of testing procedures. However, while typical substance screening procedures (urinalysis, breathalyzers, and blood tests) are reliable indicators of the *presence* of ethanol, they only link the levels of inebriation to individual job performance impairment in a very general way.[13]

Given the relatively pervasive nature of alcohol misuse and its associated work-related problems, it is ironic that alcohol testing is much less prevalent than illicit drug screening programs.[14] This could be attributed to several factors, including differing social tolerances of alcohol and illicit drug use[15] and applicable Federal policy regulations. For instance, according to a 1994 study by Jacques Normand and others:

> "Urine tests do not, however, show whether there is alcohol-induced impairment, whether alcohol has been used in the workplace, or whether there is alcohol in the blood while at work. Establishing impairment due to alcohol is important because the Americans with Disabilities Act (ADA) does not protect current users of illicit drugs, but it does protect those who are diagnosed as alcoholics. Thus under the ADA, any test result that is to be the basis of negative action has to establish impairment. This requirement inevitably leads to the need to establish threshold blood alcohol concentration (BAC) above which the employee may be presumed to be under the influence of alcohol with attendant physiological and behavioral impairments."[16]

Presently, an acceptable blood alcohol concentration level in the workplace has not been established. Therefore, alcohol impairment guidelines for many employers remain discretionary. While presidential Executive Order 12564, signed in 1986, mandated that employers are legally allowed to test for illicit drugs, the guidelines established in 1988 by the Department of Health and Human Services excluded alcohol as a substance for which workers were to be tested. The only exception to this omission of alcohol is the recent Omnibus Transportation Act of 1991, which requires the Department of Transportation to include alcohol as a target drug in its testing program.

In summary, while labor and management have attempted to control the problems associated with alcohol misuse in the workplace, historically, alcohol-testing programs have not been adopted in great numbers, certainly relative to the prevalence of illicit drug-testing programs. Our research, however, suggests that the prevalence of testing for alcohol is increasing.

Survey results

Who gets tested? Worksites were more likely to test current employees than job applicants for alcohol misuse. (See table 1.) In 1995, 28.4 percent of all worksites conducted alcohol

Exhibit 1. National estimates of alcohol and drug testing among applicants, employees, and combinations of both groups in private nonagricultural worksites, 1995

[In percent]

		Worksite conducts drug testing on applicants		
		Yes	No	Total (alcohol testing)
Worksite conducts alcohol testing on applicants	Yes	20.6 (1.4)	1.1 (.3)	21.7 (1.4)
	No	25.2 (1.4)	53.0 (1.7)	78.3 (1.4)
	Total (drug testing)	45.9 (1.7)	54.1 (1.7)	100.0

More than twice as many worksites test applicants for drugs (45.9 percent) than for alcohol (21.7 percent).

		Worksite conducts drug testing on current employees		
		Yes	No	Total (alcohol testing)
Worksite conducts alcohol testing on current employees	Yes	22.7 (1.4)	5.7 (.8)	28.4 (1.5)
	No	11.0 (1.1)	60.6 (1.7)	71.6 (1.5)
	Total (drug testing)	33.7 (1.6)	66.3 (1.6)	100.0

Slightly more worksites test current employees for drugs (33.7 percent) than for alcohol (28.4 percent).

		Worksite conducts drug testing[1]		
		Yes	No	Total (alcohol testing)
Worksite conducts alcohol testing	Yes	33.5 (1.6)	2.6 (1.6)	36.0 (1.6)
	No	20.2 (1.4)	43.7 (1.7)	63.9 (1.6)
	Total (drug testing)	53.7 (1.7)	46.3 (1.7)	100.0

When a worksite tests for drugs, it usually also tests for alcohol. Only 2.6 percent of worksites test for alcohol and not drugs. Conversely, many worksites test for drugs and not alcohol (20.2 percent).

[1]Worksites that test applicants only, current employees only, and both applicants and current employees.

NOTE: Data in parentheses represent the standard error.

Data are based on private nonagricultural worksites with 50 or more employees.

testing on current employees, and 21.7 percent of all worksites tested applicants. Also, testing of current employees increased from 20.3 percent in 1993 to 28.4 percent in 1995 (which is statistically significant at the .05 level), representing a 39.9-percent increase in alcohol testing prevalence. (Note, the 1993 national survey did not inquire about alcohol testing for applicants.) Further, in 1995, 36 percent of worksites conducted alcohol testing for applicants, or current employees, or both.

Worksite size. Table 1 also shows the positive relationship between worksite size and the prevalence of an alcohol-testing program. In 1995, approximately 40.0 percent of the large worksites, those with more than 1,000 employees, conducted testing on current employees (33.3 percent tested applicants), compared with 25 percent of small worksites, those with 50 to 99 employees (19.2 percent tested applicants). However, among small worksites, the prevalence of alcohol-testing programs for current employees increased significantly from 15.8 percent to 25 percent from the 1993 survey period to the 1995 period. This compares with the 37.5-percent (1993) to 40.0-percent (1995) rate among large worksites. Thus, the prevalence of alcohol testing is increasing more rapidly in smaller worksites.

Type of industry. The prevalence of alcohol testing varies widely across industry groups both for applicants and current employees. (See table 1.) For example, in 1995, the communications, utilities, and transportation industries had a testing prevalence of 47.4 percent for current employees (30.3 percent for applicants), while the prevalence for the finance, insurance, and real estate industries was only 7.3 percent (5.8 percent for applicants). For all industry groups, the prevalence of testing usually increased from the 1993 to 1995 survey periods, and this increase was statistically significant in the manufacturing; communications, utilities, and transportation; and mining and construction industries.

Census region. Differences in the prevalence of alcohol testing by the regions defined by the Bureau of the Census show the South having the highest prevalence (37.9 percent) and the Northeast (20.1 percent), the lowest prevalence for current employees in 1995. All regions except the West had in-

creased testing prevalence for current employees from 1993 to 1995, with the Northeast and the South having relatively large increases that were statistically significant.

Government regulation. Of the worksites that test for alcohol, in 1995, 31.7 percent of them were required to do so by the Federal Government. (See table 1.) The association between testing and regulations is differentially manifested across types of industry, however. For example, required alcohol testing is most prevalent in communications, utilities, and transportation (67.7 percent), which is an industry group regulated by the Omnibus Transportation Act of 1991, while least prevalent in the unregulated finance, insurance, and real estate industries (11.6 percent). Thus, as expected, there is a positive, although variable, correlation between worksite prevalence of alcohol testing and Government regulation requiring testing. Table 1 also shows that the Northeast has a relatively high Government-required testing prevalence of 39.2 percent for worksites that test.

Alcohol versus drug testing

Clearly, drug testing is still more prevalent than alcohol testing.[17] For example, 36.0 percent of worksites with more than 50 employees conduct alcohol testing for applicants or current employees or both, while the corresponding prevalence for drug testing is 53.7 percent. (See exhibit 1.) In addition, when a worksite conducts alcohol testing, it almost always tests for drugs, while a worksite that tests for drugs does not always test for alcohol. For example, only 2.6 percent of worksites test for alcohol (on applicants or employees, or both) and do not test for drugs. By contrast, 20.2 percent of worksites test for drugs, but do not test for alcohol. Exhibit 1 also shows that the prevalence of drug testing for applicants is more than twice that of alcohol testing (45.9 percent, versus 21.7 percent).

Alcohol-testing details

Characteristics. The presence of alcohol testing varies by worksite and individual characteristics. For example, for worksites that conduct alcohol testing, 23.4 percent of employees have college degrees, while this percentage is 28.6 percent in worksites with no alcohol testing. (See table 2.) In general, table 2 indicates that worksites with testing programs have a significantly higher percentage of males, full-time employees, and unions, while they have a significantly lower percentage of employees with college degrees. Neither the percentage of younger employees (under age 30) at a worksite nor the percentage of employees with a high school diploma show statistically significant differences.

If a worksite conducts alcohol testing, it is more likely to test for drug use, (92.9 percent), have an employee assistance program (49.2 percent), and have a written alcohol and drug use policy (97.3 percent). (See table 2.)

Frequency and type of program. For worksites that conduct alcohol testing of current employees, we examined the frequency and type of program in place during 1995. Table 3 shows the prevalence of programs that test on an unconditional and on a conditional basis. Unconditional testing includes random and regular assessments to which any employee could be subjected regardless of conduct or job per-formance. Conditional testing consists of assessments that occur for selected employees, and is based on conditions, such as following an accident, after determining a reasonable cause, or following up as a completion to substance abuse treatment.

In general, worksites are more likely to conduct conditional than unconditional testing of employees. For worksites that conduct conditional alcohol testing of current employees, overall, the prevalence in 1995 is higher following an accident (73.9

Table 2. Employee and worksite characteristics by alcohol-testing status among private nonagricultural worksites, 1995

[In percent]

Characteristic	All worksites	Worksites that test for alcohol use		Statistically significant[1]
		Yes	No	
Employee characteristics:				
Male	52.0	60.2	47.4	Yes
Full-time job	84.4	88.1	82.4	Yes
Under 30 years of age	35.6	33.7	36.7	No
High school diploma	85.9	84.7	86.7	No
College degree	26.8	23.4	28.6	Yes
Union affiliation	10.8	17.0	7.4	Yes
Worksite characteristics:				
Tests for drug use	53.7	92.9	31.7	Yes
Implements employee assistance program	36.3	49.2	29.0	Yes
Maintains written policy regarding drug or alcohol use	91.3	97.3	87.9	Yes
Applies Drug Free Workplace Act	29.1	33.3	26.7	No

[1]Significant difference in percentages for worksites with or without alcohol testing at the .05 level.

NOTE: Data are based on private nonagricultural worksites with 50 or more employees.

Percentages for employee characteristics are means of percentages of employees at worksites with that characteristic; the statistical test was the *t*-test. Percentages under worksite characteristics are percentages of worksites with that characteristic; the statistical test was the chi-square test.

percent) and for reasonable cause (77.9 percent) than it is after substance abuse treatment (50.9 percent). In general, testing for alcohol after an accident decreases as worksite size increases (77.0 percent for small worksites, versus 62.3 percent for large worksites), whereas testing increases after substance abuse treatment as worksite size increases (47.8 percent for small worksites, versus 64.4 percent for large worksites). The finance, insurance, and real estate industries have a relatively low testing prevalence following an accident (36.3 percent) and a relatively high testing prevalence for reasonable cause (92.0 percent) and following substance abuse treatment (67.6 percent). Compared with the other three regions, the Northeast had the highest prevalence of testing after substance abuse treatment (61.5 percent).

Among unconditional testing types, the results indicate that random testing (48.4 percent) is more prevalent than regular testing (12.4 percent). In 1995, the prevalence of random testing was highest in small worksites (59.9 percent), in the communications, utilities, and transportation industries (82.4 percent), and in the West region (59.1 percent). Regular testing was highest in the mining and construction industries (22.1 percent) and in the northeast region (19.5 percent). In 1995, for those worksites that conduct random tests, we asked whether the employees selected for testing were told before the day of the test or only after reporting to work on the day of the test. Our estimates indicate that 14 percent of worksites that conduct random testing tell their employees about their selection before the day of the test.

Table 3. National estimates of unconditional alcohol-testing prevalence, among worksites that test current employees, by type of testing program and by worksite characteristics, 1995

[In percent]

Characteristic	Unconditional testing		Conditional testing		
	Random testing	Regular testing	Following an accident	Reasonable cause	Follow-up to substance abuse treatment
All worksites	48.4	12.4	73.9	77.9	50.9
	(3.1)	(1.9)	(2.9)	(2.8)	(3.2)
Worksite size					
50–99 employees	59.9	10.7	77.0	75.3	47.8
	(6.1)	(3.4)	(5.4)	(5.4)	(6.5)
100–249 employees	40.3	14.9	76.2	75.3	51.2
	(5.2)	(3.5)	(4.8)	(5.2)	(5.4)
250–999 employees	44.6	10.1	70.6	84.9	49.4
	(5.7)	(3.3)	(5.5)	(3.8)	(5.8)
1,000 employees or more	45.5	15.7	62.3	78.5	64.4
	(7.7)	(4.5)	(8.8)	(7.8)	(8.2)
Industry					
Manufacturing	34.1	12.6	77.0	80.3	49.3
	(4.5)	(3.1)	(4.1)	(3.9)	(4.8)
Wholesale and retail	64.4	16.0	79.7	61.6	50.3
	(8.1)	(6.3)	(7.5)	(8.7)	(9.0)
Communications, utilities, and transportation	82.4	18.6	77.9	84.3	60.4
	(4.2)	(4.0)	(6.5)	(5.8)	(6.6)
Finance, insurance, and real estate	26.0	6.7	36.3	92.0	67.6
	(11.6)	(5.1)	(14.2)	(5.7)	(14.2)
Mining and construction	70.5	22.1	79.1	82.6	61.9
	(6.0)	(5.6)	(5.8)	(5.6)	(7.0)
Services	38.7	4.3	63.8	81.5	45.4
	(7.2)	(1.6)	(7.3)	(5.8)	(7.5)
Region					
Northeast	48.9	19.5	77.9	70.8	61.5
	(8.1)	(6.6)	(6.4)	(7.7)	(7.7)
Midwest	39.3	9.9	73.4	84.3	47.3
	(5.7)	(2.7)	(5.8)	(4.1)	(5.9)
South	49.7	13.7	75.1	76.9	52.6
	(4.9)	(3.1)	(4.4)	(4.5)	(5.1)
West	59.1	6.7	67.6	76.3	43.2
	(7.5)	(2.6)	(7.7)	(7.4)	(7.7)

NOTE: Data are based on private nonagricultural worksites with 50 or more employees. Worksites that test only job applicants are not included in this table. Figures do not add up to 100 because they are not mutually exclusive.

Data in parentheses represent the standard error.

Testing methods and who conducts testing. The prevalence of alcohol-testing methods and the group responsible for conducting the tests can be examined by workplace size, type of industry, and region of current employees. Urinalysis is by far the most popular testing method (72.2 percent overall), with blood analysis and breathalyzers used in only about one-fourth of the worksites that do testing.[18] (See table 4.) The breathalyzer is used more by large worksites than small ones (35.2 percent for large worksites, versus 18.4 percent for small worksites). By industry, there are large differences in the testing methods used. For example, the finance, insurance, and real estate industries use urinalysis 95.4 percent of the time and the breathalyzer only 6.9 percent of the time, whereas the communications, utilities, and transportation industries use the breathalyzer 51.4 percent of the time. By region, the West has the highest prevalence of urinalysis testing (78.7 percent) and the lowest use of both blood analysis (14.1 percent) and the breathalyzer (14.9 percent). The Northeast has the highest prevalence of performance testing.

Overall, outside contractors do most of the alcohol testing (72.9 percent), but as worksite size increases, a much larger percentage of testing is done at the worksite by worksite employees. For example, 62.4 percent of the testing is done by employees of the worksite for large worksites, but only 21.3 percent for small worksites. Most industry types have 60

to 70 percent of their testing done by outside contractors. One exception is the wholesale/retail trade industry which has 87.9 percent of its testing done outside. Thus, testing by an outside contractor is by far the most popular model overall and across industry types, but larger worksites tend to have more alcohol testing conducted by employees of the worksite.

What the results show

The results of our study show that alcohol testing, while less prevalent than testing for illicit drug use, is widely implemented in worksites and is increasing in prevalence. Testing for alcohol misuse is conducted most likely in worksites that have the resources to implement such a program, and such testing is significantly more likely to occur in larger worksites than in smaller ones throughout the Nation. However, smaller worksites have experienced the fastest growth in adopting testing programs between 1993 and 1995.

Testing programs are more likely to occur in worksites where job turnover tends to be low (and in industries such as communications, utilities, and transportation; mining and construction; and manufacturing, which have more full-time workers) and where employees are perceived to be at greater risk (males, unionized, and fewer years of education) due to job stress or the presence of workplace drinking cultures, or both.[19] Accordingly, testing programs are more likely to be conditional in nature; following an accident, finding a reasonable cause, or following an employee's completion of substance abuse treatment. Consistent with other studies of illicit drug testing, we found that random testing is the most prevalent method of unconditional testing.[20]

Growth in the prevalence of alcohol testing in the workplace is somewhat surprising. From the objective standpoint, positive results for the presence of alcohol do not necessarily indicate intoxication or a psychological or behavioral inability to perform job tasks. These problems arise when alcohol

Table 4. Prevalence of alcohol-testing methods and conductors of tests among private nonagricultural worksites that test current employees, by worksite characteristics, 1995

[In percent]

Characteristic	Alcohol testing methods				Conductors of alcohol tests	
	Urinalysis	Blood analysis	Breathalyzer	Performance testing	Outside contractor	By company employees
All worksites	72.2	27.7	23.6	7.3	72.9	27.1
	(2.5)	(2.6)	(2.2)	(1.4)	(2.4)	(2.4)
Worksite size						
50–99 employees	70.1	26.9	18.4	4.7	78.7	21.3
	(5.0)	(4.9)	(3.8)	(2.4)	(4.5)	(4.5)
100–249 employees	74.2	28.4	22.5	6.2	76.3	23.7
	(4.2)	(4.6)	(3.6)	(2.5)	(4.1)	
250–999 employees	73.2	27.3	27.7	11.3	74.4	25.6
	(4.6)	(4.6)	(4.5)	(3.4)	(4.0)	(4.0)
1,000 employees or more	70.8	29.2	35.2	10.3	37.6	62.4
	(6.6)	(6.5)	(6.4)	(2.7)	(6.7)	(6.7)
Industry						
Manufacturing	77.5	28.2	19.5	7.6	73.2	26.8
	(3.4)	(3.7)	(3.1)	(2.0)	(3.5)	(3.5)
Wholesale and retail	68.5	19.7	20.4	4.3	87.9	12.1
	(7.0)	(6.1)	(5.8)	(3.5)	(4.9)	(4.9)
Communications, utilities, and transportation	62.5	19.4	51.4	4.9	67.6	32.4
	(5.3)	(3.7)	(5.9)	(1.8)	(5.0)	(5.0)
Finance, insurance, and real estate	95.4	20.3	6.9	2.4	64.7	35.3
	(3.4)	(7.7)	(4.8)	(1.7)	(13.9)	(13.9)
Mining and construction	80.4	34.4	26.5	8.2	65.4	34.6
	(4.7)	(6.1)	(5.4)	(3.2)	(6.1)	(6.1)
Services	67.6	37.2	20.5	10.6	64.4	35.6
	(6.4)	(6.7)	(5.1)	(3.9)	(6.3)	(6.3)
Region						
Northeast	74.9	23.2	24.3	13.6	69.0	31.0
	(6.3)	(5.9)	(6.3)	(6.0)	(6.5)	(6.5)
Midwest	70.6	32.6	27.1	8.5	78.3	21.7
	(4.7)	(4.8)	(4.2)	(2.6)	(3.8)	(3.8)
South	69.0	33.0	25.3	5.6	71.2	28.8
	(4.2)	(4.5)	(3.6)	(1.8)	(3.9)	(3.9)
West	78.7	14.1	14.9	3.9	71.9	28.1
	(5.6)	(4.5)	(3.9)	(1.7)	(6.1)	(6.1)

NOTE: Data in parentheses represent the standard error.

is used in relatively large quantities over a short period of time. Moreover, the effect of alcohol on job performance is mediated by a number of influences, including, physiological, psychological, and metabolic differences; work conditions; and performance requirements.[21]

From another viewpoint, it is ironic that alcohol-testing programs in the workplace are only one-half as prevalent as programs that test for illicit drugs, given consistent epidemiological research estimating a much greater occurrence of employee alcohol misuse. The growth in alcohol testing has paralleled that of drug-testing programs, and very few alcohol-testing programs exist in worksites that do not also test for illicit drugs.[22] On the whole, alcohol testing rarely occurs as a single strategy to combat substance abuse in the workplace, and is highly likely to occur in worksites that engage in a wide range of strategies, including the use of formal policies and employee assistance programs.

An independent influence that cuts through general patterns of alcohol testing is that of Federal Government regulations. Legislation has a targeted effect on certain worksites and industries, and it can mandate particular testing strategies. In the case of the Omnibus Transportation Act of 1991, transportation industries are mandated to implement random alcohol testing (as opposed to more common conditional testing), a method that has proven to be relatively cost ineffective for detecting substance abusers.[23] Another influence on alcohol testing is the Americans with Disabilities Act which defines alcoholic workers as a medically protected group. With these workers, alcohol-related job performance impairment must be confirmed before the worker may be sanctioned; something that testing programs per se cannot demonstrate. In contrast, unprotected illicit drug users merely have to be confirmed as having consumed drugs at some point either on or off the job to be subject to sanctioning. □

Footnotes

ACKNOWLEDGMENT: Financial assistance for this study was provided by a grant from the National Institute on Drug Abuse (NIDA contract number DA07250-02). Correspondence may be sent to: Tyler D. Hartwell, Research Triangle Institute, P.O. Box 12194, Research Triangle Park, NC 27709–2194. Fax number (919) 541–5966.

[1] J. Normand, R. O. Lempert, and C. P. O'Brien, eds., *Under the Influence: Drugs and the American Workforce* (Washington, National Academy Press, 1994), p. 191.

[2] B. C. Alleyne, P. Stuart, and R. Copes, "Alcohol and other drug use in occupational fatalities," *Journal of Occupational Medicine*, vol. 33, 1991, pp. 496–500; R. W. Hingson, R. I. Lederman, and D.C. Walsh, "Employee drinking patterns and accidental injury: a study of four New England states," *Journal of Studies on Alcohol*, vol. 46, 1985, pp. 298–303; R. J. Lewis and S. P. Cooper, "Alcohol, other drugs, and fatal work-related injuries," *Journal of Occupational Medicine*, vol. 31, 1989, pp. 23–28; and H. M. Trice and P. M. Roman, *Spirits and Demons at Work* (Ithaca, NY, Cornell University Press, 1972).

[3] For example, see Howard V. Hayghe, "Anti-drug programs in the workplace: are they here to stay?" *Monthly Labor Review*, April 1991, pp. 26–29.

[4] W. E. K. Lehman, M. L. Holcom, and D. D. Simpson, "Employee health and performance in the workplace: a survey of municipal employees in a large southwest city" (Fort Worth, TX, Institute of Behavioral Research, Texas Christian University, 1990), unpublished; J. Normand and others, eds., *Under the Influence*; and A. L. Rosenbaum, W. E. K. Lehman, K. E. Olson, and M. L. Holcom, "Prevalence of substance use and its association with performance among municipal workers in a southwestern city" (Fort Worth, TX, Institute of Behavioral Research, Texas Christian University, 1992), unpublished.

[5] D. B. Kandel, and K. Yamaguchi, "Job mobility and drug use: an event history analysis," *American Journal of Sociology*, 1987, vol. 92, pp. 836–78.

[6] Alleyne and others, "Alcohol and other drug use," 1991; J. C. Fell, and T. Klein, *The nature of the reduction in alcohol in U.S. fatal crashes*, SAE technical paper 860038 (Warrensdale, PA, Society of Automotive Engineers, 1986); Hingson and others, "Employee drinking patterns and accidental injury; M. L Holcom, W. E. K. Lehman, and D. D. Simpson, "Employee accidents: influences of personal characteristics, job characteristics, and substance use," *Journal of Safety Research*, 1993; T. Klein, *A Method for Estimating Posterior BAC Distributions for Persons Involved in Fatal Traffic Accidents* (Washington, Sigmastat, 1986); J. J. Kuhlman, B. Levine, M. L. Smith, and J. R. Hordinsky, "Toxicological findings in Federal Aviation Administration general aviation accidents" *Journal of Forensic Sciences*, vol. 36, 1991; pp. 1121–28; Lewis and Cooper, "Alcohol, other drugs;" D. M. Andrenyak, R. P. Smith, D. G. Wilkins, A. M. Hoffman, and D. E. Rollins, "Mandatory post accident drug and alcohol testing for the Federal Railroad Administration" in S. W. Gust, J. M. Walsh, L. B. Thomas, and D. J. Crouch, eds., *Drugs in the Workplace: Research and Evaluation Data*, vol. II, NIDA Research Monograph No. 100 (Rockville, MD, National Institute on Drug Abuse, 1990); Normand and others, eds., *Under the Influence*; Transportation Research Board, *Zero Alcohol and Other Options: Limits for Truck and Bus Drivers*, Special report 216 (Washington, Transportation Research Board, National Research Council, 1987).

[7] T. C. Blum, P. M. Roman, and J. K. Martin, "Alcohol consumption and work performance," *Journal of Studies on Alcohol*, vol. 44,1993, pp. 61–70.

[8] R. C. Hollinger, "Working under the influence (WUI): correlates of employees' use of alcohol and other drugs," *Journal of Applied Behavioral Science* vol. 24, 1988, pp. 439–54; and W. E. K. Lehman, D. J. Farabee, M. L. Holcom, and D. D. Simpson, "Prediction of substance use in the workplace: unique contributions of demographic and work environment variables" (Fort Worth, TX, Institute of Behavioral Research, Texas Christian University, 1991), unpublished.

[9] M. D. Newcomb, *Drug Use in the Workplace: Risk Factors for Disruptive Substance Use Among Young Adults* (Dover, MD, Auburn House, 1988); and Rosenbaum and others, "Prevalence of substance use."

[10] W. Reichman, D. W. Young, and L. Gracin, "Identification of alcoholics in the workplace," *Recent Developments in Alcoholism* vol. 6, 1988, pp. 171–79; and Trice and Roman, *Sprits and Demons at Work*.

[11] W. J. Sonnenstuhl and H. M. Trice, *Strategies for Employee Assistance Programs: the Crucial Balance*, Revised edition (Ithaca, NY, ILR Press, 1990.)

[12] W. J. Sonnenstuhl, *Working Sober: The Transformation of an Occupational Drinking* Culture (Ithaca, NY, Cornell University Press, 1996).

[13] H. M. Trice and P. D. Steele, "Impairment testing issues and convergence with employee assistance," *Journal of Drug Issues*, vol. 25, 1995, pp. 471–503.

[14] Blum, and others, "Alcohol consumption;" and T. D. Hartwell, P. D.

Steele, M. T. French, and N. F. Rodman, "Prevalence of drug testing in the workplace," *Monthly Labor Review*, November 1996, pp. 35–42.

[15] H. M. Trice, and P. D. Steele, "Impairment testing issues and convergence with employee assistance," *Journal of Drug Issues*, vol. 25 no. 2, 1995, pp. 471–503.

[16] Normand and others, eds., *Under the Influence*, p. 191.

[17] Hartwell and others, "Prevalence of drug testing."

[18] While we do not have definitive information to explain why urinalysis is the preferred method of detecting excessive alcohol consumption, two explanations are possible. First, because alcohol testing is most likely to occur in worksites that also test for illicit drugs, it could be that alcohol ingestion is merely added to the urinalysis drug-test battery. The implementation of breathalyzer testing that would provide immediate estimates of blood alcohol content would be a cost added to those of current testing procedures in these worksites. Second, some employers could feel that much of the deterrent effect of breathalyzer testing (that is, causing fewer workers to arrive at work with excessive blood alcohol content levels, and allowing for the immediate removal of impaired employees from the workplace when detected with high levels) can be achieved by urinalysis. Specifically, if employees are aware that they are being tested for alcohol impairment, and that coming to work with excessively high blood alcohol content levels is likely to be negatively sanctioned (regardless of the relative time delay in management detecting the employee's impairment caused by the urinalysis testing procedure), employers might believe that workers would be deterred from arriving at work under the influence of alcohol.

[19] W. P. Delaney and G. Ames, "Work team attitudes, drinking norms, and workplace drinking," *Journal of Drug Issues*, vol. 25, 1995, pp. 275–90; and Sonnenstuhl and Trice, *Strategies for Employee Assistance Programs*.

[20] For example, see T. C. Blum, P. M. Roman, and J. K. Martin, "Alcohol consumption and work performance," *Journal of Studies on Alcohol*, vol. 44, 1993, pp. 61–70; and Hartwell and others, "Prevalence of drug testing."

[21] Normand, and others, eds., *Under the Influence*; and Trice and Steele, "Impairment testing issues."

[22] Hartwell, and others, "Prevalence of drug testing."

[23] Trice and Steele, "Impairment testing issues."

Appendix: Methodology

The National Survey of Worksites and Employee Assistance Programs conducted two national probability sample surveys, one in the spring of 1993 and the other in the spring of 1995. Both national surveys were conducted by telephone. The target population was private nonagricultural worksites in the United States with 50 or more employees. For this study, a worksite is defined as any business location with a unique, separate, and distinct operation, including the headquarters unit within an enterprise. The sampling frames were constructed from the Dun's Market Identifiers database from Dun's Marketing Service, a subsidiary of Dun and Bradstreet.

Each sample was stratified by industry (manufacturing; wholesale and retail trade; utilities, transportation, and communication; finance, insurance, and real estate; services; and mining and construction) and worksite size grouping (by number of employees: 40 to- 49, 50 to 99, 100 to 249, 250 to 999, and 1,000 or more). The 40 to 49 stratum was added to the survey to improve coverage of the target population because the number of employees at a worksite may vary from the number in the database. However, only worksites reporting 50 or more employees during data collection were included in the analysis.

Geographic location (four census regions) was used as a secondary stratification factor to allocate the sample proportionally across geographic regions within industry and worksite size. The 6 industry classifications, 5 size categories, and four census regions combine to give 120 strata. The final sample was selected with equal probability within each stratum. The sampling frames included approximately 421,000 worksites in 1993 and 431,000 in 1995. The final stratified sample contained 6,488 worksites in 1993 and 5,471 in 1995, of which 3,204 and 2,098 were eligible and responding worksites for 1993 and 1995, respectively.

During data collection, the response and eligibility rates were monitored and the sample size in each stratum was supplemented to accommodate differences between projected and actual response and eligibility rates. The final probability sample ensured adequate sample sizes for national estimates broken down by industry and worksite size.

The 1993 survey instrument contained about 130 questions on drug and alcohol testing, worksite demographics, characteristics and costs of employee assistance programs, employee benefits, and worksite programs. These areas were expanded for the 1995 survey instrument, which contained about 160 questions. Approximately 2 weeks prior to administering the surveys, a lead letter was mailed to the director of human resources or the personnel department. This letter introduced the study, ensuring confidentiality, and prepared the recipient for the telephone interview. The interview was conducted using computer-assisted telephone interviewing (CATI). The introductory section of the survey instruments confirmed that the correct worksite had been contacted, that the worksite was eligible to participate, and that the interviewer was speaking with the person most knowledgeable about the employee benefits. After collecting this preliminary information, interviewers determined whether the worksite had an employee assistance program. The full questionnaire was administered to those worksites with such a program, and a shortened version was used for those without one.

A worksite's sampling weight was initially computed as the inverse of its selection probability. A nonresponse adjustment was applied to compensate for nonresponding worksites. Finally, sampling weights were further adjusted for each sampling stratum by poststratifying to the worksite count in the February 1993 Dun's Market Identifiers database for the 1993 survey, and the average of the worksite counts from the February and September 1995 databases for the 1995 survey.

Because of stratification and the difference in the weights across the strata, computing valid national estimates and variances required taking into account the complex survey design. Weighted total, means, frequencies, and their standard errors were computed using the Research Triangle Institute's Survey Data Analysis software.[1]

Footnote to the appendix

[1] SUDAAN software was used in this analysis. See B. V. Shah, B. G. Barnwell, and G. S. Bieler, *SUDAAN User's Manual: Software for Analysis of Correlated Data*, Release 6.40 (Research Triangle Institute, Research Triangle Park, NC, 1995).

Skills are starting blocks for competitiveness

Information technology, global competition, welfare reforms, and the coming requirement to replace a huge cohort of skilled wage earners have combined to create what the Council on Competitiveness, a non-partisan organization of business, labor, and academic leaders, calls "compelling pressures to upgrade the U.S. skills base." The Council's report, *Winning the Skills Race*, describes why work force skills are today's greatest competitive challenge, examines the potential impact of skill shortage on a variety of stakeholders, and documents a number of successful, collaborative solutions to the shared problem.

Perhaps the most startling gap in their analysis is that between the perceived basic literacy of entry-level workers and the efforts being made to remediate it. The data the Council examined suggested that roughly 80 percent of 21- to 25-year-olds entering the labor market did not possess sufficient skills to read safety rules and write simple reports. Nevertheless, data they obtained from the 1993 Survey of Employer-Provided Training show that only 2 percent of employers offer basic skills training and data they obtained from a 1991 supplement to the Current Population Survey found that only 6 percent of workers obtained basic skills training from any source.

The working rich

At the end of the 19th century, it was low-wage workers who put in the longest workdays. Workers in the lowest hourly wage decile worked about 2 hours longer per day than workers in the top decile, according to Dora L. Costa's paper, "The Unequal Work Day: A Long-Term View," published in the May 1998 Papers and Proceedings issue of *American Economic Review*. In 1973, lower paid workers still tended to work longer days, but the decrease in hours as one worked up the wage distribution was less pronounced. In contrast, Costa's analysis of the May 1991 supplement to the Current Population Survey revealed that workers in the top wage decile worked the longest day, albeit only 40 minutes longer than those at the bottom of the wage distribution.

The pattern of hours worked has an impact on income distribution. According to Costa's figures, about a quarter of the increase in earnings inequality between 1973 and 1993, as measured by the 90/10 ratio, could be attributed to changes in hours worked. "In the past," she concludes, "an inegalitarian distribution of work tended to equalize income, whereas today it magnifies earnings disparities."

Style of corporate governance affects workers

Two working papers from the Jerome Levy Economics Institute of Bard College touch on national styles of corporate governance and their impact on the labor force, according to the Institute's May 1998 *Report*. In "The Political Economy of Corporate Governance in Germany," Mary O'Sullivan of the Center for Industrial Competitiveness at the University of Massachusetts at Lowell and INSEAD, claims that Germany's current high unemployment is not, as many suggest, the result of the high cost of German labor and their expensive pensions and welfare schemes. Rather, it is that "German corporations have failed to invest in the organizational learning that leads to innovation. It is innovation that allows corporations to improve the quality of products while reducing production costs, thereby becoming more competitive." She believes that this failure has occurred because German corporate governance has shifted toward providing returns to stakeholders—shareholders, managers, financiers, and workers—rather than building the corporation.

In comparison, William Lazonick, also of the Center for Industrial Competitiveness and INSEAD, finds that despite their current recession, Japanese firms are fundamentally sound and have stayed committed to a policy of promoting lifetime employment, rather than a policy of extracting financial returns. Lazonick's paper, "The Japanese Financial Crisis, Corporate Governance, and Sustainable Prosperity," argues that the Japanese system of cross-shareholding—much of the stock of Japanese corporations is owned by other corporations—has allowed executives to govern without interference from outside stockholders. As a result, he concludes, firms in Japan can allocate resources with a view to strengthening the company as a whole and boosting the productivity of the work force.

Health insurance affects the labor market

Almost 9 of 10 Americans with private health insurance obtain it through employer-provided plans. As a result, health care analysts have always been aware of the impact of labor market events such as unemployment on coverage. But what about the impact of health insurance coverage on labor market decisions? Tom Buchmueller, an assistant professor at the University of California—Irvine, and Rob Valletta, a senior economist at the Federal Reserve Bank of San Francisco, examine three such effects in a recent *FRBSF Economic Letter*.

Job lock is the reduced voluntary job mobility arising from the risk of losing health insurance. Their analysis suggests that this effect could be substantial, and more pronounced among women. The decision to retire is also affected by health insurance considerations. The ability to purchase post-retirement insurance at a rate comparable to that under the employer's plan may lead to earlier retirement, particularly among men. The availability of insurance also seems to increase the labor supply of married women whose husbands do not have coverage. □

Safety in the good old days

Safety First: Technology, Labor and Business in the Building of American Work Safety 1870–1939. By Mark Aldrich. Baltimore, MD, Johns Hopkins University Press, 1997, 415 pp.

At least one thing can be said about working conditions in the good old days: they were terrible! In *Safety First: Technology, Labor, and Business in the Building of American Work Safety: 1870–1939*, economist Mark Aldrich provides a valuable account of how the rising safety movement at the turn of the century shaped many of our modern safety institutions. This documentary describes the assimilation of newer and safer technologies into mainstream economic activities, flourished with an excellent collection of photography. It tells of combined institutional factors that combined to formed a safer environment in three industries: railroads, coal mining, and manufacturing.

Railroads. Aldrich describes the Safety First movement's inauguration to railroading in 1912. The Safety First movement was designed to reduce costs by taking away operator control over work practices, and thereby eliminate the capability for human error. Unions were distrustful of management interest in safety (a movement they had initially supported) because workers perceived management's interest as insincere.

Ultimately, several factors improved railroad safety: hours legislation reduced fatigue; block control systems reduced collisions; air brakes reduced the need to go between cars; and the use of heavier rails—a voluntary decision of the American Railroad Association—reduced derailments. Many railroad executives also instituted minimum safety measures to avoid government intervention. Thus, development of safety rules and procedures in railroads had little to do with compensating wage differentials so popular in today's economics literature. Rather, employers were concerned with the total cost of injury and liability, as well as company image.

Mining. The mining industry was one of the earliest to experience massive disasters, but one of the last to implement safety improvements. Aldrich reminds us that initial endowments of raw materials can affect development of work processes. Timber was bountiful and very cheap, allowing U.S. mining companies to dig very deep mines using the more dangerous tunnel and room method, rather than longwalling.

Independent contracting was another major factor affecting mining safety. Contractors were paid by the piece and to increase their daily lot, would sometimes forgo proper installation of braces. The size of the mines were getting larger, increasing the potential for ceilings to collapse, while mechanization increased the risk of explosions. Management remained indifferent to these disaster forming conditions even though catastrophies often drove labor camps away.

The development of mine run laws in 1897 that required miners to be paid for slag, not just lump coal, slowed the incessant digging of large cavernous holes. Above ground, unions fought for air quality laws in Pennsylvania, and other States followed. Under the earth's surface, battles over technology and work safety ensued. One example explains why miners objected to the introduction of a new technology—closed lamps. Miners viewed closed lamps as an interference with independent work practices, and believed closed lamps allowed companies to skimp on other important safety measures, especially ventilation.

Aldrich argues that despite the establishment of the Bureau of Mines, most improvements in safety were due to mechanization and electricity, which increased the proportion of surface workers. The threat of safety regulations and ill regard from the public encouraged companies to voluntarily adopt safety measures.

Manufacturing. The discussion of manufacturing begins with a description of new Taylorist work practices. The development of modern safety institutions, including the National Safety Council and the State workers compensation systems, were part of a movement to establish control over labor, but there was a tension between safety and profits.

While many safety professionals believed safety was too important to be left to dictates of profitability, giant firms (such as U.S. Steel) dominated the National Safety Council and formed an alliance that emphasized engineering, rather than worker empowerment. Insurance companies were also early players, conducting thousands of inspections and investigating accidents. Despite added incentives to reduce costs, profitmaking manufacturing institutions were more likely to attribute accidents to an injured worker's own carelessness. Disputes had to be settled in the courts, spurring development of workers' compensation systems.

Aldrich points to several factors influencing manufacturing safety, discussing not only management's responsibility, but also its need to obtain worker participation in safety. In exchange for participation, companies gave monetary rewards to participants on safety councils. As corporatism developed, employers spent more on accident prevention, and enticed more employees to jump on the safety bandwagon. Workers resisted, in part fearing their pay would decrease because they were often paid piece rates. Slowly, employees began to "accept the new regime" with minor objections to machine guards and uncomfortable protective equipment.

Aldrich recognized that the corporate interest in safety in manufacturing developed from scientific management.

The decisions were imposed from top management and, for workers, represented loss of control over their work. Employers were increasingly made aware of the costs of safety, and began to base some decisions on that information. Accordingly, employers obtained countless productivity enhancements due to safety improvements, but workers lost control over their own pace and methods of work.

Safety First shows how different forms of economic development in distinctive institutional contexts can have varied consequences on occupational safety and health. Aldrich goes a far way to pull modern economic and empirical issues from history to the fore. The important lesson for economists is to look beyond the immediate effects of legislation to fully appreciate the dynamic context of legal, management, and labor institutions which influence behavior. However, toward this full appreciation, three issues deserve brief discussion.

First, despite its very particular explanations, the book suffers from some generalization of management styles in the manufacturing industry. It would have been helpful if the author had emphasized earlier in the chapter that only a very small percentage and the largest firms, those with "organizational nags," were engaged in the Safety First movement. Aldrich gives some explanation why firm size matters, but what about ownership and employee relations in the 75 percent of firms without safety directors?

Second, Aldrich justifies masculine terminology, saying, "the safety movement was largely masculine, and in many of the industries where it was active most of the workers were male." Replacing the term "manhours" with "hours" is easy enough, but this statement is not a matter of political correctness, but of accuracy. While Aldrich explains that men dominated the industrial safety movement and safety committees, he fails to consider women as activist wives and as union members themselves. He even omitted the horrific 1911 Triangle Shirtwaist Co. fire in New York—where 154 workers, mostly women and children, died and 50 women jumped 10 stories to their deaths. This event galvanized men and *women* to demand corrections. Sadly, Aldrich's index only contains the names of two women, Mrs. Dupont and Mrs. Eastman, both wives of company executives. Important though they may have been, they hardly marched in the streets, testified before the government, and pressured management and the government to improve safety requirements, end child labor, protect their husband's health, and control pollution, as did several women at the turn of the century.

Third, Aldrich describes safety improvements over the 20th century as breathtaking. While rates of incidence have dropped, the United States still has roughly 6,100 fatalities and 6.6 million injuries and illness cases (one-third with lost work days) each year, according to the Bureau of Labor Statistics, making it one of the most "least-progressive" industrialized nation in terms of occupational safety and health improvements.

The pace of technological change has dramatically increased since the turn of the century. Even during that dazzling period of new inventions, diffusion was amazingly slow. Today, new, unpredictable, and potentially dangerous technologies, equipment, and materials are introduced into workplaces almost daily. We may not know what the effects of these are for decades to come. We must inquire: What has changed in our ability to control technologies?

Safety First provides truly fascinating stories about the difficulties of getting very simple changes approved and in use. The value of this book lies not only in the rich institutional detail of new and safer technologies and management and labor's ability to assimilate them, but also in providing a warning for the future. Our ability to keep up with the speed of change, and our ability to quickly and safely assimilate improvements into our work while preserving and improving employment will be one of the greatest challenges for labor-management cooperation. The stories told by Aldrich suggest that if any party leaves the bargaining table, unilaterally imposed technology and safety rules will remain contestable terrain.

—Heather Grob

Director of Economic Research
Center to Protect Workers' Rights

Doctors in unions

When Doctors Join Unions. By Grace Budrys. Ithaca, NY, Cornell University Press, 1997, 155 pp., bibliography. $35.

In the last few years, health care cost increases have attracted the attention of the media, policymakers, academicians, and the general public. New managed care techniques have been developed in order to contain costs. Traditional indemnity plans are increasing their use of managed care techniques in an attempt to reduce costs. For example, techniques such as preadmission certification and second surgical opinions are widespread among indemnity plans. The composition of the health care sector providers has been changing as well. In most States, the figure of the doctor with an individual practice has been disappearing in favor of new alternatives, such as physicians' hospital organizations and health maintenance organizations.

When Doctors Join Unions focuses on practically the sole survivor of the physicians' union movement of the 1970s, the Union of American Physicians and Dentists (Physicians and Dentists Union). This union started in California in 1972 and has developed its own model. In a dual role, it is a union for salaried physicians and a consultant for doctors in private practice. This book is the result of research that

recounts the origins of the Physicians and Dentists Union and its development in the last two decades. The author mentions another physicians' union established in New York in 1959, but does not combine the experiences of both unions.

The author organizes the book by four study approaches identified as health services, industrial relations, organizational and occupational analysis, and cross-national comparative perspectives. Each approach is related to changes the Physicians and Dentists Union has faced in its history, and how it is reinventing itself to gain the support of physicians and the respect of policymakers. Budrys favors doctors' unions and promotes them as a response to the centralization and market-oriented decisions that doctors increasingly face in their constantly changing environment. Even though the author favors the Physicians and Dentists Union cause, the book presents contrasting opinions related to the emergence and role of doctors' unions.

According to Budrys, in the United States, physicians unions exist because doctors' social status and professional autonomy are at stake. These points allow the author to discuss other topics, such as the traditional role of unions, the meaning of professionalism, and doctors' unions as a model for the so-called post-industrial era.

As argued in the book, doctors' unions are products of their societies and they need public support. Budrys illustrates both points by describing experiences from unions in Germany, Canada, Israel, and other countries where physicians' unions are common. Also, according to Budrys, physicians' unions reflect the prevalent value system. Therefore, the experiences of physicians' unions in other countries are not yet relevant in the United States, where the current value system is still individualistic and self-achievement is the goal.

In general, the author fulfilled her objective of answering three main questions: Why do doctors need a union? Why did the Union of American Physicians and Dentists survive while other physicians' unions did not? Why would physicians choose to turn to a union? The author answers these questions throughout the book and devotes an entire chapter in order to reiterate them. Putting together the history of the Physicians and Dentists Union allows Budrys to provide information that helps readers comprehend the transformation that has been occurring in the health care sector since the 1960s, which itself is one of the major contributions of the book. The role that the Physicians and Dentists Union will play in the development of future unions is still unknown, so extrapolating the Physicians and Dentists Union experience to other occupational groups is risky and still needs more study.

The book is well-written, easy to read, and understandable, although some familiarity with health care terms may be useful. The use of the four approaches might be too ambitious; thus some sections, such as the industrialization and the post-industrialization chapters, serve only as an introduction for the interested reader to seek more information in specialized sources, such as those listed in the extensive bibliography.

—Iris S. Diaz

Office of Compensation and Working Conditions
Bureau of Labor Statistics

Economic theory

Full Employment and Growth: Further Keynesian Essays on Policy. By James Tobin. Brookfield, VT, Edward Elgar Publishing Co., 1996, 312 pp.

Professor James Tobin's many contributions to the field of economics cover a broad range—from purely theoretical work in econometric methods and formal modeling to applied analysis of government economic policy. In 1981, he received the Nobel Prize in Economics for his "most outstanding and significant research contribution [which] belongs to the theory of financial markets and their relation to consumption and investment decisions, production, employment, and prices."

To many, both inside and outside of the economics profession, the ideas presented by British economist John Maynard Keynes in his influential 1936 book, *The General Theory of Employment, Interest and Money,* have long been laid to rest. In his latest collection of essays for the general reader, Tobin offers a cogent argument to the contrary. Drawn from various nontechnical articles and speeches from over the last decade, *Full Employment and Growth* provides a primer on contemporary economic history, theory, and practice.

Because the "main purpose and preoccupation of macroeconomic theory is to guide fiscal and monetary policies," different theories "imply important differences in policy." Tobin reminds us that for much of the post-World War II era, most mainstream economists and policymakers considered themselves Keynesians of one form or another. The Great Depression had allowed Keynes to question the classical orthodoxy of his day, and the prosperity that followed had given his new theory credibility. But the oil shocks and related economic problems of the 1970s increasingly brought Keynesian ideas into question, and eventually they were largely replaced by those of "neoclassical economics."

Tobin is unapologetic about his stance: "I am still a Keynesian [and] I continue to fight for Keynesian policies and against the extreme revivals of classical economics within my profession." The two "schools" of economics differ primarily in their view of the business cycle and what, if anything, should be done by the government to ease or even prevent them. According to Tobin, "Keynesian theory," which developed in the context of the Great

Depression, "regards recessions as lapses from full-employment equilibrium, massive economy-wide market failures resulting from shortages of aggregate demand for goods and services and for the labour to produce them." Keynesians therefore "advocate active fiscal and monetary policies [by the government] to restore and maintain full employment" during economic downturns.

Neoclassical theory, on the other hand, "interprets fluctuations [in output and employment] as moving equilibrium, individually and socially rational responses to unavoidable exogenous shocks." Thus, by the logic of its adherents, "no policy interventions are necessary or desirable." They would only make matters worse.

Tobin's essays are divided into five sections: macroeconomic policy, monetary policy, fiscal policy, international economic relations, and social policy. The first section deals primarily with Tobin's defense of Keynesian theory and policy, and his dissent from what he calls the "Panglossian view" of his neoclassical colleagues, who have "stretched" Adam Smith's famous invisible hand doctrine to the point of "imply[ing] a complacent view of business cycles as healthy natural phenomena that require no interventions by central banks and governments." In just 76 pages, these first seven chapters eloquently describe the most important and influential economic theories of the past 50 years, as well as the relevant economic history of the period.

In the remaining sections, Tobin also covers an enormous amount of economic theory and history in a relatively short amount of space. The monetary policy section includes an essay on deregulating the finance industry, as well as several on specific monetary policies practiced in the United States since the 1980s. The fiscal policy section includes essays on the Federal budget deficit and prescriptions for growth and prosperity. Five essays on international economic relations cover such issues as trade with Japan, aiding the former Soviet Union countries, and globalization. The final chapters on social policy offer Tobin's views on the persistence of poverty and growing economic inequality in the United States, the problems with the Social Security system, and health care reform.

Tobin's perspective is hardly unbiased—he says repeatedly that he is an avowed Keynesian. But his book is nevertheless invaluable because it provides a concise, well-written, and accessible account of the macroeconomic issues that have dominated public policy debate for the last 20 years. Anyone wanting to better understand the Keynesian and neoclassical doctrines, as well as the economic events of the recent period, would benefit from reading Professor Tobin's book.

—Lawrence H. Leith
Office of Publications
Bureau of Labor Statistics

Unemployment insurance

Unemployment Insurance in the United States: Analysis of Policy Issues. Edited by Christopher J. O'Leary and Stephen A. Wandner. Kalamazoo, MI, W.E. Upjohn Institute for Employment Research, 1997, 761 pp.

Unemployment Insurance in the United States: Analysis of Policy Issues is a collection of papers originally written for a conference held in June 1995 at Kalamazoo, MI. The conference was sponsored by the U.S. Department of Labor and the W.E. Upjohn Institute for Employment Research in celebration of the Institute's fiftieth anniversary. The editors, Christopher J. O'Leary and Stephen A. Wandner, intended the book for unemployment insurance specialists, but, with a little extra effort, generalists could benefit from studying it too.

O'Leary and Wandner state their objectives in the preface: ". . . to present an accessible survey of what is known about how the federal-state system of unemployment insurance (UI) works in the United States and to offer ideas for further improvement of the system." They have achieved their objectives. Not only do these papers describe how the system works, but they review analyses of the key issues, and suggest options for further research and improvement of the system.

The editors organized the book in a logical manner. Unemployment insurance is a partnership between the Federal Government and the States. The Social Security Act and the Federal Unemployment Tax Act form the framework and State unemployment insurance laws govern the programs within this framework. Benefits are financed by earmarked payroll taxes. On the benefit side, the editors organized the papers by covered employment, initial eligibility, continuing eligibility, weekly benefits, potential duration of benefits, and work disincentives. On the tax side, the authors examine the taxable wage base and experience-rated unemployment insurance tax systems in the States. Other papers address solvency of the system and individual State unemployment insurance programs, quality of administration, the role of the Employment Service, the Federal and State roles, and interaction with other programs. At the end, there is a comparison of the U.S. system with the Group of Seven nations and other countries around the world.

In light of recent evidence on the effectiveness of job search assistance, the most startling revelation is the recent trend in State unemployment insurance programs toward relaxing job search requirements. O'Leary and Wandner say this probably was: (1) a result of "the widely held belief that the work search requirement is not necessary or effective in promoting return to work"; and (2) an unintended consequence of benefit quality control. Burman Skrable

notes that early in the implementation of benefit quality control in the 1980s, the largest source of reported overpayments was failure to search for work or unavailability for work. Apparently, in reaction to high reported overpayment errors, some States reduced their job-search requirements to lower their reported overpayments. As a result, reported overpayments fell, and the proportion of reported overpayments due to failure to search for work or unavailability for work dropped from around half to only 17 percent by 1994.

Besides weakened job-search requirements, other trouble spots are the ineligibility of rising numbers of self-employed independent contractors and part-time workers, the ineligibility of some low-wage workers with substantial hours of work in their base years, and an ineffective extended benefits program. Ideas for reform include improving definitions of employment, making eligible part-time workers seeking part-time work, adding an alternative hours of work measure in the base-year requirement to help low-wage workers gain eligibility, integrating the eligibility requirements of the extended benefits program with State programs, and activating the extended benefits program in each State with the total unemployment rate instead of the insured unemployment rate.

On the tax side, Philip B. Levine's chapter shows that the burden of unemployment payroll taxes has been shifting away from high-wage workers toward low-wage workers. Even if it is merely a matter of equity, economists generally agree that unemployment taxable wage bases should be increased. The minimal Federal unemployment taxable wage base of $7,000, for example, has not changed since the early 1980s and would have exceeded $65,000 today if it had kept pace with the Social Security taxable wage base.

James R. Storey and Jennifer A. Neisner note that the unemployment insurance program in the United States is the only program in the world that experience rates employers. Do we know something the rest of the world does not know? We seem to believe that by internalizing the costs of unemployment, we will discourage layoffs and reduce average unemployment over the economic cycle. Yet, Levine concludes that research on experience rating provides ". . .no clear policy recommendations." Further, he says an unemployment insurance system with greater experience rating might lead to smaller fluctuations in employment over the business cycle, but lower levels of average employment than a system with less experience rating and greater variance in employment.

A major implication of the evidence presented in this book is that the system should place more emphasis on reemployment assistance in general and job-search assistance in particular. With greater numbers of welfare recipients probably earning unemployment insurance covered wages and becoming eligible for unemployment insurance benefits, job-search assistance could be even more important than recent evidence suggests. Although the unemployment insurance system has instituted Worker Profiling and Re-employment Services for dislocated workers, no similar system is in place for these newly eligible low-wage workers. Unless States reemphasize job-search requirements, unemployment insurance costs could escalate as newly eligible low-wage workers take longer to find new jobs than they would if they had more job search assistance. Such an unintended consequence of welfare reform on State unemployment insurance programs would be unfortunate not only for the unemployment insurance system, but also for welfare recipients earnestly trying to achieve self-sufficiency.

In the forward of this book, Robert G. Spiegelman said, "Overall, this book should become an essential reference for anyone interested in the state of knowledge about the policy issues facing the unemployment insurance system." I agree. This book will take a place along side Haber and Murray's *Unemployment Insurance in the American Economy: An Historical Review and Analysis*, Blaustein's *Unemployment Insurance in the United States: The First Half Century*, and the reports of the Unemployment Compensation Commission in 1980 and the reports of the Advisory Council on Unemployment Compensation in 1994, 1995, and 1996.

I recommend it highly.

—Richard A. Hobbie
The Lewin Group

Notes on labor statistics 42

Comparative indicators

1. Labor market indicators 52
2. Annual and quarterly percent changes in compensation, prices, and productivity 53
3. Alternative measures of wages and compensation changes 53

Labor force data

4. Employment status of the population, seasonally adjusted 54
5. Selected employment indicators, seasonally adjusted 55
6. Selected unemployment indicators, seasonally adjusted 56
7. Duration of unemployment, seasonally adjusted 56
8. Unemployed persons by reason for unemployment, seasonally adjusted 57
9. Unemployment rates by sex and age, seasonally adjusted 57
10. Unemployment rates by States, seasonally adjusted 58
11. Employment of workers by States, seasonally adjusted 58
12. Employment of workers by industry, seasonally adjusted 59
13. Average weekly hours by industry, ... 61
14. Average hourly earnings by industry, seasonally adjusted 61
15. Average hourly earnings by industry 62
16. Average weekly earnings by industry 63
17. Diffusion indexes of employment change, seasonally adjusted 64
18. Annual data: Employment status of the population 64
19. Annual data: Employment levels by industry 65
20. Annual data: Average hours and earnings levels by industry 65

Labor compensation and collective bargaining data

21. Employment Cost Index, compensation, by occupation and industry group 66
22. Employment Cost Index, wages and salaries, by occupation and industry group 68
23. Employment Cost Index, benefits, private industry workers, by occupation and industry group 69
24. Employment Cost Index, private nonfarm workers, by bargaining status, region, and area size 70
25. Participants in benefit plans, medium and large firms 71

Labor compensation and collective bargaining data—continued

26. Participants in benefits plans, small firms and government 72
27. Work stoppages involving 1,000 workers or more 73

Price data

28. Consumer Price Index: U.S. city average, by expenditure category and commodity and service groups 74
29. Consumer Price Index: U.S. city average and local data, all items 77
30. Annual data: Consumer Price Index, all items and major groups 78
31. Producer Price Indexes by stage of processing 79
32. Producer Price Indexes for the net output of major industry groups 80
33. Annual data: Producer Price Indexes by stage of processing 80
34. U.S. export price indexes by Standard International Trade Classification 81
35. U.S. import price indexes by Standard International Trade Classification 82
36. U.S. export price indexes by end-use category 83
37. U.S. import price indexes by end-use category 84
38. U.S.international price indexes for selected categories of services 84

Productivity data

39. Indexes of productivity, hourly compensation, and unit costs, data seasonally adjusted 85
40. Annual indexes of multifactor productivity 86
41. Annual indexes of productivity, hourly compensation, unit costs, and prices 87
42. Annual indexes of output per hour for selected industries 88

International comparisons data

43. Unemployment rates in nine countries, data seasonally adjusted 90
44. Annual data: Employment status of the civilian working-age population, 10 countries 91
45. Annual indexes of productivity and related measures, 12 countries 92

Injury and illness data

46. Annual data: Occupational injury and illness incidence rates 93
47. Fatal occupational injuries by event or exposure, 1992–95 95

This section of the *Review* presents the principal statistical series collected and calculated by the Bureau of Labor Statistics: series on labor force; employment; unemployment; labor compensation; consumer, producer, and international prices; productivity; international comparisons; and injury and illness statistics. In the notes that follow, the data in each group of tables are briefly described; key definitions are given; notes on the data are set forth; and sources of additional information are cited.

General notes

The following notes apply to several tables in this section:

Seasonal adjustment. Certain monthly and quarterly data are adjusted to eliminate the effect on the data of such factors as climatic conditions, industry production schedules, opening and closing of schools, holiday buying periods, and vacation practices, which might prevent short-term evaluation of the statistical series. Tables containing data that have been adjusted are identified as "seasonally adjusted." (All other data are not seasonally adjusted.) Seasonal effects are estimated on the basis of past experience. When new seasonal factors are computed each year, revisions may affect seasonally adjusted data for several preceding years.

Seasonally adjusted data appear in tables 1–14, 16–17, 39, and 43. Seasonally adjusted labor force data in tables 1 and 4–9 were revised in the February 1998 issue of the *Review*. Seasonally adjusted establishment survey data shown in tables 1, 12–14 and 16–17 were revised in the July 1997 *Review* and reflect the experience through March 1997. A brief explanation of the seasonal adjustment methodology appears in "Notes on the data."

Revisions in the productivity data in table 45 are usually introduced in the September issue. Seasonally adjusted indexes and percent changes from month-to-month and quarter-to-quarter are published for numerous Consumer and Producer Price Index series. However, seasonally adjusted indexes are not published for the U.S. average All-Items CPI. Only seasonally adjusted percent changes are available for this series.

Adjustments for price changes. Some data—such as the "real" earnings shown in table 14—are adjusted to eliminate the effect of changes in price. These adjustments are made by dividing current-dollar values by the Consumer Price Index or the appropriate component of the index, then multiplying by 100. For example, given a current hourly wage rate of $3 and a current price index number of 150, where 1982 = 100, the hourly rate expressed in 1982 dollars is $2 ($3/150 x 100 = $2). The $2 (or any other resulting values) are described as "real," "constant," or "1982" dollars.

Sources of information

Data that supplement the tables in this section are published by the Bureau in a variety of sources. Definitions of each series and notes on the data are contained in later sections of these Notes describing each set of data. For detailed descriptions of each data series, see *BLS Handbook of Methods*, Bulletin 2490. Users also may wish to consult *Major Programs of the Bureau of Labor Statistics*, Report 919. News releases provide the latest statistical information published by the Bureau; the major recurring releases are published according to the schedule appearing on the back cover of this issue.

More information about labor force, employment, and unemployment data and the household and establishment surveys underlying the data are available in the Bureau's monthly publication, *Employment and Earnings*. Historical unadjusted and seasonally adjusted data from the household survey are available on the Internet:

http://stats.bls.gov/cgi-bin/dsrv?lf

Historically comparable unadjusted and seasonally adjusted data from the establishment survey also are available on the Internet:

http://stats.bls.gov/cgi-bin/dsrv?ee

Additional information on labor force data for sub-States are provided in the BLS annual report, *Geographic Profile of Employment and Unemployment.*

For a comprehensive discussion of the Employment Cost Index, see *Employment Cost Indexes and Levels, 1975–95*, BLS Bulletin 2466. The most recent data from the Employee Benefits Survey appear in the following Bureau of Labor Statistics bulletins: *Employee Benefits in Medium and Large Firms; Employee Benefits in Small Private Establishments;* and *Employee Benefits in State and Local Governments.*

More detailed data on consumer and producer prices are published in the monthly periodicals, *The CPI Detailed Report* and *Producer Price Indexes*. For an overview of the 1998 revision of the CPI, see the December 1996 issue of the *Monthly Labor Review*. Additional data on international prices appear in monthly news releases.

For a listing of available industry productivity indexes and their components, see *Productivity Measures for Selected Industries*, BLS Bulletin 2491.

For additional information on international comparisons data, see *International Comparisons of Unemployment*, BLS Bulletin 1979.

Detailed data on the occupational injury and illness series are published in *Occupational Injuries and Illnesses in the United States, by Industry*, a BLS annual bulletin.

Finally, the *Monthly Labor Review* carries analytical articles on annual and longer term developments in labor force, employment, and unemployment; employee compensation and collective bargaining; prices; productivity; international comparisons; and injury and illness data.

Symbols

n.e.c. = not elsewhere classified.
n.e.s. = not elsewhere specified.
p = preliminary. To increase the timeliness of some series, preliminary figures are issued based on representative but incomplete returns.
r = revised. Generally, this revision reflects the availability of later data, but also may reflect other adjustments.

Comparative Indicators

(Tables 1–3)

Comparative indicators tables provide an overview and comparison of major BLS statistical series. Consequently, although many of the included series are available monthly, all measures in these comparative tables are presented quarterly and annually.

Labor market indicators include employment measures from two major surveys and information on rates of change in compensation provided by the Employment Cost Index (ECI) program. The labor force participation rate, the employment-to-population ratio, and unemployment rates for major demographic groups based on the Current Population ("household") Survey are presented, while measures of employment and average weekly hours by major industry sector are given using nonfarm payroll data. The Employment Cost Index (compensation), by major sector and by bargaining status, is chosen from a variety of BLS compensation and wage measures because it provides a comprehensive measure of employer costs for hiring labor, not just outlays for wages, and it is not affected by employment shifts among occupations and industries.

Data on **changes in compensation, prices, and productivity** are presented in table 2.

Measures of rates of change of compensation and wages from the Employment Cost Index program are provided for all civilian nonfarm workers (excluding Federal and household workers) and for all private nonfarm workers. Measures of changes in consumer prices for all urban consumers; producer prices by stage of processing; overall prices by stage of processing; and overall export and import price indexes are given. Measures of productivity (output per hour of all persons) are provided for major sectors.

Alternative measures of wage and compensation rates of change, which reflect the overall trend in labor costs, are summarized in table 3. Differences in concepts and scope, related to the specific purposes of the series, contribute to the variation in changes among the individual measures.

Notes on the data

Definitions of each series and notes on the data are contained in later sections of these notes describing each set of data.

Employment and Unemployment Data

(Tables 1; 4–20)

Household survey data

Description of the series

EMPLOYMENT DATA in this section are obtained from the Current Population Survey, a program of personal interviews conducted monthly by the Bureau of the Census for the Bureau of Labor Statistics. The sample consists of about 50,000 households selected to represent the U.S. population 16 years of age and older. Households are interviewed on a rotating basis, so that three-fourths of the sample is the same for any 2 consecutive months.

Definitions

Employed persons include (1) all those who worked for pay any time during the week which includes the 12th day of the month or who worked unpaid for 15 hours or more in a family-operated enterprise and (2) those who were temporarily absent from their regular jobs because of illness, vacation, industrial dispute, or similar reasons. A person working at more than one job is counted only in the job at which he or she worked the greatest number of hours.

Unemployed persons are those who did not work during the survey week, but were available for work except for temporary illness and had looked for jobs within the preceding 4 weeks. Persons who did not look for work because they were on layoff are also counted among the unemployed. **The unemployment rate** represents the number unemployed as a percent of the civilian labor force.

The **civilian labor force** consists of all employed or unemployed persons in the civilian noninstitutional population. Persons **not in the labor force** are those not classified as employed or unemployed. This group includes discouraged workers, defined as persons who want and are available for a job and who have looked for work sometime in the the past 12 months (or since the end of their last job if they held one within the past 12 months), but are not currently looking, because they believe there are no jobs available or there are none for which they would qualify. The **civilian noninstitutional population** comprises all persons 16 years of age and older who are not inmates of penal or mental institutions, sanitariums, or homes for the aged, infirm, or needy. The **civilian labor force participation** rate is the proportion of the civilian noninstitutional population that is in the labor force. The **employment-population ratio** is employment as a percent of the civilian noninstitutional population.

Notes on the data

From time to time, and especially after a decennial census, adjustments are made in the Current Population Survey figures to correct for estimating errors during the intercensal years. These adjustments affect the comparability of historical data. A description of these adjustments and their effect on the various data series appears in the Explanatory Notes of *Employment and Earnings*.

Labor force data in tables 1 and 4–9 are seasonally adjusted. Since January 1980, national labor force data have been seasonally adjusted with a procedure called X-11 ARIMA which was developed at Statistics Canada as an extension of the standard X-11 method previously used by BLS. A detailed description of the procedure appears in the X-11 *ARIMA Seasonal Adjustment Method*, by Estela Bee Dagum (Statistics Canada, Catalogue No. 12-564E, January 1983).

At the end of each calendar year, historical seasonally adjusted data usually are revised, and projected seasonal adjustment factors are calculated for use during the January–June period. Because of the redesign of the survey, seasonally adjusted data back to 1994 usually are revised. In July, new seasonal adjustment factors, which incorporate the experience through June, are produced for the July–December period, but no revisions are made in the historical data.

Revisions to household data

Data beginning in 1998 are not strictly comparable with data for 1997 and earlier years because of the introduction of new composite estimation procedures and updated population controls. Additional information on these revisions appears in the February 1998 issue of *Employment and Earnings*.

FOR ADDITIONAL INFORMATION on national household survey data, contact the Division of Labor Force Statistics: (202) 606–6378.

Establishment survey data

Description of the series

EMPLOYMENT, HOURS, AND EARNINGS DATA in this section are compiled from payroll records reported monthly on a voluntary basis to the Bureau of Labor Statistics and its cooperating State agencies by about 390,000 establishments representing all industries except agriculture. Industries are classified in accordance with the 1987 *Standard Industrial Classification (SIC) Manual*. In most industries, the sampling probabilities are based on the size of the establishment; most large establishments are therefore in the sample. (An establishment is not necessarily a firm; it may be a branch plant, for example, or warehouse.) Self-employed persons and others not on a regular civilian payroll are outside the scope of the survey because they are excluded from establishment records. This largely accounts for the difference in employment figures between the household and establishment surveys.

Definitions

An **establishment** is an economic unit which produces goods or services (such as a factory or store) at a single location and is engaged in one type of economic activity.

Employed persons are all persons who received pay (including holiday and sick pay) for any part of the payroll period including the 12th day of the month. Persons holding more than one job (about 5 percent of all persons in the labor force) are counted in each establishment which reports them.

Production workers in manufacturing include working supervisors and nonsupervisory workers closely associated with production operations. Those workers mentioned in tables 11–16 include production workers in manufacturing and mining; construction

workers in construction; and nonsupervisory workers in the following industries: transportation and public utilities; wholesale and retail trade; finance, insurance, and real estate; and services. These groups account for about four-fifths of the total employment on private nonagricultural payrolls.

Earnings are the payments production or nonsupervisory workers receive during the survey period, including premium pay for overtime or late-shift work but excluding irregular bonuses and other special payments. **Real earnings** are earnings adjusted to reflect the effects of changes in consumer prices. The deflator for this series is derived from the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

Hours represent the average weekly hours of production or nonsupervisory workers for which pay was received, and are different from standard or scheduled hours. **Overtime hours** represent the portion of average weekly hours which was in excess of regular hours and for which overtime premiums were paid.

The **Diffusion Index** represents the percent of industries in which employment was rising over the indicated period, plus one-half of the industries with unchanged employment; 50 percent indicates an equal balance between industries with increasing and decreasing employment. In line with Bureau practice, data for the 1-, 3-, and 6-month spans are seasonally adjusted, while those for the 12-month span are unadjusted. Data are centered within the span. Table 17 provides an index on private nonfarm employment based on 356 industries, and a manufacturing index based on 139 industries. These indexes are useful for measuring the dispersion of economic gains or losses and are also economic indicators.

Notes on the data

Establishment survey data are annually adjusted to comprehensive counts of employment (called "benchmarks"). The latest adjustment, which incorporated March 1996 benchmarks, was made with the release of May 1997 data, published in the July 1997 issue of the *Review*. Coincident with the benchmark adjustment, seasonally adjusted data were revised back to 1988 to reflect updated seasonal factors and seasonal adjustment procedures. Unadjusted data from April 1996 forward and seasonally adjusted data from January 1993 forward are subject to revision in future benchmarks.

Revisions in State data (table 11) occurred with the publication of January 1998 data.

Beginning in June 1996, the BLS uses the X-12 ARIMA methodology to seasonally adjust establishment survey data. This procedure, developed by the Bureau of the Census, controls for the effect of varying survey intervals (also known as the 4- versus 5-week effect), thereby providing improved measurement of over-the-month changes and underlying economic trends. Revisions of data, usually for the most recent 5-year period, are made once a year coincident with the benchmark revisions.

In the establishment survey, estimates for the most recent 2 months are based on incomplete returns and are published as preliminary in the tables (12–17 in the *Review*). When all returns have been received, the estimates are revised and published as "final" (prior to any benchmark revisions) in the third month of their appearance. Thus, December data are published as preliminary in January and February and as final in March. For the same reasons, quarterly establishment data (table 1) are preliminary for the first 2 months of publication and final in the third month. Thus, fourth-quarter data are published as preliminary in January and February and as final in March.

A comprehensive discussion of the differences between household and establishment data on employment appears in Gloria P. Green, "Comparing employment estimates from household and payroll surveys," *Monthly Labor Review*, December 1969, pp. 9–20.

FOR ADDITIONAL INFORMATION on establishment survey data, contact the Division of Monthly Industry Employment Statistics: (202) 606–6555.

Unemployment data by State

Description of the series

Data presented in this section are obtained from the Local Area Unemployment Statistics (LAUS) program, which is conducted in cooperation with State employment security agencies.

Monthly estimates of the labor force, employment, and unemployment for States and sub-State areas are a key indicator of local economic conditions, and form the basis for determining the eligibility of an area for benefits under Federal economic assistance programs such as the Job Training Partnership Act. Seasonally adjusted unemployment rates are presented in table 10. Insofar as possible, the concepts and definitions underlying these data are those used in the national estimates obtained from the CPS.

Notes on the data

Data refer to State of residence. Monthly data for all States and the District of Columbia are derived using standardized procedures established by BLS. Once a year, estimates are revised to new population controls, usually with publication of January estimates, and benchmarked to annual average CPS levels.

FOR ADDITIONAL INFORMATION on data in this series, call (202) 606–6392 (table 10) or (202) 606–6589 (table 11).

Compensation and Wage Data

(Tables 1–3; 21–27)

COMPENSATION AND WAGE DATA are gathered by the Bureau from business establishments, State and local governments, labor unions, collective bargaining agreements on file with the Bureau, and secondary sources.

Employment Cost Index

Description of the series

The **Employment Cost Index** (ECI) is a quarterly measure of the rate of change in compensation per hour worked and includes wages, salaries, and employer costs of employee benefits. It uses a fixed market basket of labor—similar in concept to the Consumer Price Index's fixed market basket of goods and services—to measure change over time in employer costs of employing labor.

Statistical series on total compensation costs, on wages and salaries, and on benefit costs are available for private nonfarm workers excluding proprietors, the self-employed, and household workers. The total compensation costs and wages and salaries series are also available for State and local government workers and for the civilian nonfarm economy, which consists of private industry and State and local government workers combined. Federal workers are excluded.

The Employment Cost Index probability sample consists of about 4,400 private nonfarm establishments providing about 23,000 occupational observations and 1,000 State and local government establishments providing 6,000 occupational observations selected to represent total employment in each sector. On average, each reporting unit provides wage and compensation information on five well-specified occupations. Data are collected each quarter for the pay period including the 12th day of March, June, September, and December.

Beginning with June 1986 data, fixed employment weights from the 1980 Census of Population are used each quarter to calculate the civilian and private indexes and the index for State and local governments. (Prior to June 1986, the employment weights are from the 1970 Census of Population.) These fixed weights, also used to derive all of the industry and occupation series indexes, ensure that changes in these indexes reflect only changes in compensa-

tion, not employment shifts among industries or occupations with different levels of wages and compensation. For the bargaining status, region, and metropolitan/nonmetropolitan area series, however, employment data by industry and occupation are not available from the census. Instead, the 1980 employment weights are reallocated within these series each quarter based on the current sample. Therefore, these indexes are not strictly comparable to those for the aggregate, industry, and occupation series.

Definitions

Total compensation costs include wages, salaries, and the employer's costs for employee benefits.

Wages and salaries consist of earnings before payroll deductions, including production bonuses, incentive earnings, commissions, and cost-of-living adjustments.

Benefits include the cost to employers for paid leave, supplemental pay (including nonproduction bonuses), insurance, retirement and savings plans, and legally required benefits (such as Social Security, workers' compensation, and unemployment insurance).

Excluded from wages and salaries and employee benefits are such items as payment-in-kind, free room and board, and tips.

Notes on the data

The Employment Cost Index for changes in wages and salaries in the private nonfarm economy was published beginning in 1975. Changes in total compensation cost—wages and salaries and benefits combined—were published beginning in 1980. The series of changes in wages and salaries and for total compensation in the State and local government sector and in the civilian nonfarm economy (excluding Federal employees) were published beginning in 1981. Historical indexes (June 1981=100) are available on the Internet:

http://stats.bls.gov/ecthome.htm

FOR ADDITIONAL INFORMATION on the Employment Cost Index, contact the Office of Compensation Levels and Trends: (202) 606–6199.

Employee Benefits Survey

Description of the series

Employee benefits data are obtained from the Employee Benefits Survey, an annual survey of the incidence and provisions of selected benefits provided by employers. The survey collects data from a sample of approximately 6,000 private sector and State and local government establishments. The data are presented as a percentage of employees who participate in a certain benefit, or as an average benefit provision (for example, the average number of paid holidays provided to employees per year). Selected data from the survey are presented in table 25 for medium and large private establishments and in table 26 for small private establishments and State and local government.

The survey covers paid leave benefits such as lunch and rest periods, holidays and vacations, and personal, funeral, jury duty, military, parental, and sick leave; sickness and accident, long-term disability, and life insurance; medical, dental, and vision care plans; defined benefit and defined contribution plans; flexible benefits plans; reimbursement accounts; and unpaid parental leave.

Also, data are tabulated on the incidence of several other benefits, such as severance pay, child-care assistance, wellness programs, and employee assistance programs.

Definitions

Employer-provided benefits are benefits that are financed either wholly or partly by the employer. They may be sponsored by a union or other third party, as long as there is some employer financing. However, some benefits that are fully paid for by the employee also are included. For example, long-term care insurance and postretirement life insurance paid entirely by the employee are included because the guarantee of insurability and availability at group premium rates are considered a benefit.

Participants are workers who are covered by a benefit, whether or not they use that benefit. If the benefit plan is financed wholly by employers and requires employees to complete a minimum length of service for eligibility, the workers are considered participants whether or not they have met the requirement. If workers are required to contribute towards the cost of a plan, they are considered participants only if they elect the plan and agree to make the required contributions.

Defined benefit pension plans use predetermined formulas to calculate a retirement benefit, and obligate the employer to provide those benefits. Benefits are generally based on salary, years of service, or both.

Defined contribution plans generally specify the level of employer and employee contributions to a plan, but not the formula for determining eventual benefits. Instead, individual accounts are set up for participants, and benefits are based on amounts credited to these accounts.

Tax-deferred savings plans are a type of defined contribution plan that allow participants to contribute a portion of their salary to an employer-sponsored plan and defer income taxes until withdrawal.

Flexible benefit plans allow employees to choose among several benefits, such as life insurance, medical care, and vacation days, and among several levels of care within a given benefit.

Notes on the data

Surveys of employees in medium and large establishments conducted over the 1979–86 period included establishments that employed at least 50, 100, or 250 workers, depending on the industry (most service industries were excluded). The survey conducted in 1987 covered only State and local governments with 50 or more employees. The surveys conducted in 1988 and 1989 included medium and large establishments with 100 workers or more in private industries. All surveys conducted over the 1979–89 period excluded establishments in Alaska and Hawaii, as well as part-time employees.

Beginning in 1990, surveys of State and local governments and small establishments are conducted in even-numbered years and surveys of medium and large establishments are conducted in odd-numbered years. The small establishment survey includes all private nonfarm establishments with fewer than 100 workers, while the State and local government survey includes all governments, regardless of the number of workers. All three surveys include full- and part-time workers, and workers in all 50 States and the District of Columbia.

FOR ADDITIONAL INFORMATION on the Employee Benefits Survey, contact the Office of Compensation Levels and Trends (202) 606–6222 or the Internet:

http://stats.bls.gov/ebshome.htm

Work stoppages

Description of the series

Data on work stoppages measure the number and duration of major strikes or lockouts (involving 1,000 workers or more) occurring during the month (or year), the number of workers involved, and the amount of time lost because of stoppage. These data are presented in table 27.

Data are largely from newspaper accounts and cover only establishments directly involved in a stoppage. They do not measure the indirect or secondary effect of stoppages on other establishments whose employees are idle owing to material shortages or lack of service.

Definitions

Number of stoppages: The number of strikes and lockouts involving 1,000 work-

ers or more and lasting a full shift or longer.

Workers involved: The number of workers directly involved in the stoppage.

Number of days idle: The aggregate number of workdays lost by workers involved in the stoppages.

Days of idleness as a percent of esti-mated working time: Aggregate workdays lost as a percent of the aggregate number of standard workdays in the period multiplied by total employment in the period.

Notes on the data

This series is not comparable with the one terminated in 1981 that covered strikes involving six workers or more.

FOR ADDITIONAL INFORMATION on work stoppages data, contact the Office of Compensation Levels and Trends: (202) 606–6282, or the Internet:

http://stats.bls.gov//lmrhome.htm

Price Data

(Tables 2; 28–38)

PRICE DATA are gathered by the Bureau of Labor Statistics from retail and primary markets in the United States. Price indexes are given in relation to a base period—1982 = 100 for many Producer Price Indexes, 1982–84 = 100 for many Consumer Price Indexes (unless otherwise noted), and 1990 = 100 for International Price Indexes.

Consumer Price Indexes

Description of the series

The **Consumer Price Index** (CPI) is a measure of the average change in the prices paid by urban consumers for a fixed market basket of goods and services. The CPI is calculated monthly for two population groups, one consisting only of urban households whose primary source of income is derived from the employment of wage earners and clerical workers, and the other consisting of all urban households. The wage earner index (CPI-W) is a continuation of the historic index that was introduced well over a half-century ago for use in wage negotiations. As new uses were developed for the CPI in recent years, the need for a broader and more representative index became apparent. The all-urban consumer index (CPI-U), introduced in 1978, is representative of the 1993–95 buying habits of about 87 percent of the noninstitutional population of the United States at that time, compared with 32 percent represented in the CPI-W. In addition to wage earners and clerical workers, the CPI-U covers professional, managerial, and technical workers, the self-employed, short-term workers, the unemployed, retirees, and others not in the labor force.

The CPI is based on prices of food, clothing, shelter, fuel, drugs, transportation fares, doctors' and dentists' fees, and other goods and services that people buy for day-to-day living. The quantity and quality of these items are kept essentially unchanged between major revisions so that only price changes will be measured. All taxes directly associated with the purchase and use of items are included in the index.

Data collected from more than 23,000 retail establishments and 5,800 housing units in 87 urban areas across the country are used to develop the "U.S. city average." Separate estimates for 14 major urban centers are presented in table 29. The areas listed are as indicated in footnote 1 to the table. The area indexes measure only the average change in prices for each area since the base period, and do not indicate differences in the level of prices among cities.

Notes on the data

In January 1983, the Bureau changed the way in which homeownership costs are meaured for the CPI-U. A rental equivalence method replaced the asset-price approach to homeownership costs for that series. In January 1985, the same change was made in the CPI-W. The central purpose of the change was to separate shelter costs from the investment component of home-ownership so that the index would reflect only the cost of shelter services provided by owner-occupied homes. An updated CPI-U and CPI-W were introduced with release of the January 1987 data.

FOR ADDITIONAL INFORMATION on consumer prices, contact the Division of Consumer Prices and Price Indexes: (202) 606–7000.

Producer Price Indexes

Description of the series

Producer Price Indexes (PPI) measure average changes in prices received by domestic producers of commodities in all stages of processing. The sample used for calculating these indexes currently contains about 3,200 commodities and about 80,000 quotations per month, selected to represent the movement of prices of all commodities produced in the manufacturing; agriculture, forestry, and fishing; mining; and gas and electricity and public utilities sectors. The stage-of-processing structure of PPI organizes products by class of buyer and degree of fabrication (that is, finished goods, intermediate goods, and crude materials). The traditional commodity structure of PPI organizes products by similarity of end use or material composition. The industry and product structure of PPI organizes data in accordance with the Standard Industrial Classification (SIC) and the product code extension of the SIC developed by the U.S. Bureau of the Census.

To the extent possible, prices used in calculating Producer Price Indexes apply to the first significant commercial transaction in the United States from the production or central marketing point. Price data are generally collected monthly, primarily by mail questionnaire. Most prices are obtained directly from producing companies on a voluntary and confidential basis. Prices generally are reported for the Tuesday of the week containing the 13th day of the month.

Since January 1992, price changes for the various commodities have been averaged together with implicit quantity weights representing their importance in the total net selling value of all commodities as of 1987. The detailed data are aggregated to obtain indexes for stage-of-processing groupings, commodity groupings, durability-of-product groupings, and a number of special composite groups. All Producer Price Index data are subject to revision 4 months after original publication.

FOR ADDITIONAL INFORMATION on producer prices, contact the Division of Industrial Prices and Price Indexes: (202) 606–7705.

International Price Indexes

Description of the series

The **International Price Program** produces monthly and quarterly export and import price indexes for nonmilitary goods traded between the United States and the rest of the world. The export price index provides a measure of price change for all products sold by U.S. residents to foreign buyers. ("Residents" is defined as in the national income accounts; it includes corporations, businesses, and individuals, but does not require the organizations to be U.S. owned nor the individuals to have U.S. citizenship.) The import price index provides a measure of price change for goods purchased from other countries by U.S. residents.

The product universe for both the import and export indexes includes raw materials, agricultural products, semifinished manufactures, and finished manufactures, including both capital and consumer goods. Price data for these items are collected primarily by mail questionnaire. In nearly all cases, the data are collected directly from the exporter or importer, although in a few cases, prices are obtained from other sources.

To the extent possible, the data gathered refer to prices at the U.S. border for exports

and at either the foreign border or the U.S. border for imports. For nearly all products, the prices refer to transactions completed during the first week of the month. Survey respondents are asked to indicate all discounts, allowances, and rebates applicable to the reported prices, so that the price used in the calculation of the indexes is the actual price for which the product was bought or sold.

In addition to general indexes of prices for U.S. exports and imports, indexes are also published for detailed product categories of exports and imports. These categories are defined according to the five-digit level of detail for the Bureau of Economic Analysis End-use Classification (SITC), and the four-digit level of detail for the Harmonized System. Aggregate import indexes by country or region of origin are also available.

BLS publishes indexes for selected categories of internationally traded services, calculated on an international basis and on a balance-of-payments basis.

Notes on the data

The export and import price indexes are weighted indexes of the Laspeyres type. Price relatives are assigned equal importance within each harmonized group and are then aggregated to the higher level. The values assigned to each weight category are based on trade value figures compiled by the Bureau of the Census. The trade weights currently used to compute both indexes relate to 1990.

Because a price index depends on the same items being priced from period to period, it is necessary to recognize when a product's specifications or terms of transaction have been modified. For this reason, the Bureau's questionnaire requests detailed descriptions of the physical and functional characteristics of the products being priced, as well as information on the number of units bought or sold, discounts, credit terms, packaging, class of buyer or seller, and so forth. When there are changes in either the specifications or terms of transaction of a product, the dollar value of each change is deleted from the total price change to obtain the "pure" change. Once this value is determined, a linking procedure is employed which allows for the continued repricing of the item.

For the export price indexes, the preferred pricing is f.a.s. (free alongside ship) U.S. port of exportation. When firms report export prices f.o.b. (free on board), production point information is collected which enables the Bureau to calculate a shipment cost to the port of exportation. An attempt is made to collect two prices for imports. The first is the import price f.o.b. at the foreign port of exportation, which is consistent with the basis for valuation of imports in the national accounts. The second is the import price c.i.f.(costs, insurance, and freight) at the U.S. port of importation, which also includes the other costs associated with bringing the product to the U.S. border. It does not, however, include duty charges. For a given product, only one price basis series is used in the construction of an index.

FOR ADDITIONAL INFORMATION on international prices, contact the Division of International Prices: (202) 606–7155.

Productivity Data

(Tables 2; 39–42)

Business sector and major sectors

Description of the series

The productivity measures relate real output to real input. As such, they encompass a family of measures which include single-factor input measures, such as output per unit of labor input (output per hour) or output per unit of capital input, as well as measures of multifactor productivity (output per unit of combined labor and capital inputs). The Bureau indexes show the change in output relative to changes in the various inputs. The measures cover the business, nonfarm business, manufacturing, and nonfinancial corporate sectors.

Corresponding indexes of hourly compensation, unit labor costs, unit nonlabor payments, and prices are also provided.

Definitions

Output per hour of all persons (labor productivity) is the quantity of goods and services produced per hour of labor input. **Output per unit of capital services** (capital productivity) is the quantity of goods and services produced per unit of capital services input. **Multifactor productivity** is the quantity of goods and services produced per combined unit of labor and capital inputs.

Compensation per hour is total compensation divided by hours at work. Total compensation equals the wages and salaries of employees plus employers' contributions for social insurance and private benefit plans, plus an estimate of these payments for the self-employed (except for nonfinancial corporations in which there are no self-employed). **Real compensation per hour** is compensation per hour deflated by the change in the Consumer Price Index for All Urban Consumers.

Unit labor costs are the labor compensation costs expended in the production of a unit of output and are derived by dividing compensation by output. **Unit nonlabor payments** include profits, depreciation, interest, and indirect taxes per unit of output. They are computed by subtracting compensation of all persons from current-dollar value of output and dividing by output.

Unit nonlabor costs contain all the components of unit nonlabor payments except unit profits.

Unit profits include corporate profits with inventory valuation and capital consumption adjustments per unit of output.

Hours of all persons are the total hours at work of payroll workers, self-employed persons, and unpaid family workers.

Labor inputs are hours of all persons adjusted for the effects of changes in the education and experience of the labor force.

Capital services are the flow of services from the capital stock used in production. It is developed from measures of the net stock of physical assets—equipment, structures, land, and inventories—weighted by rental prices for each type of asset.

Combined units of labor and capital inputs are derived by combining changes in labor and capital input with weights which represent each component's share of total output. The indexes for capital services, labor inputs, and combined units of labor and capital are based on changing weights which are averages of the shares in the current and preceding year (the Tornquist index-number formula).

Notes on the data

Business sector output is an annually-weighted index constructed by excluding from real gross domestic product (GDP) the following outputs: general government, nonprofit institutions, paid employees of private households, and the rental value of owner-occupied dwellings. Nonfarm business also excludes farming. Private business and private nonfarm business further exclude government enterprises. The measures are supplied by the U.S. Department of Commerce's Bureau of Economic Analysis. Annual estimates of manufacturing sectoral output are produced by the Bureau of Labor Statistics. Quarterly manufacturing output indexes from the Federal Reserve Board are adjusted to these annual output measures by the BLS. Compensation data are developed from data of the Bureau of Economic Analysis and the Bureau of Labor Statistics. Hours data are developed from data of the Bureau of Labor Statistics.

The productivity and associated cost measures in tables 39–42 describe the relationship between output in real terms and the labor and capital inputs involved in its production. They show the changes from period to period in the amount of goods and services produced per unit of input.

Although these measures relate output to

hours and capital services, they do not measure the contributions of labor, capital, or any other specific factor of production. Rather, they reflect the joint effect of many influences, including changes in technology; shifts in the composition of the labor force; capital investment; level of output; changes in the utilization of capacity, energy, material, and research and development; the organization of production; managerial skill; and characteristics and efforts of the work force.

FOR ADDITIONAL INFORMATION on this productivity series, contact the Division of Productivity Research: (202) 606–5606.

Industry productivity measures

Description of the series

The BLS industry productivity data supplement the measures for the business economy and major sectors with annual measures of labor productivity for selected industries at the three- and four-digit levels of the Standard Industrial Classification system. The industry measures differ in methodology and data sources from the productivity measures for the major sectors because the industry measures are developed independently of the National Income and Product Accounts framework used for the major sector measures.

Definitions

Output per employee hour is derived by dividing an index of industry output by an index of aggregate hours of all employees. Output indexes are based on quantifiable units of products or services, or both, combined with value-share weights. Whenever possible, physical quantities are used as the unit of measurement for output. If quantity data are not available for a given industry, data on the constant-dollar value of production are used.

The **labor input** series consist of the hours of all employees (production and nonproduction workers), the hours of all persons (paid employees, partners, proprietors, and unpaid family workers), or the number of employees, depending upon the industry.

Notes on the data

The industry measures are compiled from data produced by the Bureau of Labor Statistics, the Departments of Commerce, Interior, and Agriculture, the Federal Reserve Board, regulatory agencies, trade associations, and other sources.

For most industries, the productivity indexes refer to the output per hour of all employees. For some transportation industries, only indexes of output per employee are prepared. For some trade and service industries, indexes of output per hour of all persons (including self-employed) are constructed.

FOR ADDITIONAL INFORMATION on this series, contact the Division of Industry Productivity Studies: (202) 606–5618.

International Comparisons

(Tables 43–45)

Labor force and unemployment

Description of the series

Tables 43 and 44 present comparative measures of the labor force, employment, and unemployment—approximating U.S. concepts—for the United States, Canada, Australia, Japan, and several European countries. The unemployment statistics (and, to a lesser extent, employment statistics) published by other industrial countries are not, in most cases, comparable to U.S. unemployment statistics. Therefore, the Bureau adjusts the figures for selected countries, where necessary, for all known major definitional differences. Although precise comparability may not be achieved, these adjusted figures provide a better basis for international comparisons than the figures regularly published by each country.

Definitions

For the principal U.S. definitions of the **labor force**, **employment**, and **unemployment**, see the Notes section on Employment and Unemployment Data: Household survey data.

Notes on the data

The adjusted statistics have been adapted to the age at which compulsory schooling ends in each country, rather than to the U.S. standard of 16 years of age and older. Therefore, the adjusted statistics relate to the population aged 16 and older in France, Sweden, and the United Kingdom; 15 and older in Canada, Australia, Japan, Germany, Italy from 1993 onward, and the Netherlands; and 14 and older in Italy prior to 1993. The institutional population is included in the denominator of the labor force participation rates and employment-population ratios for Japan and Germany; it is excluded for the United States and the other countries.

In the U.S. labor force survey, persons on layoff who are awaiting recall to their jobs are classified as unemployed. European and Japanese layoff practices are quite different in nature from those in the United States; therefore, strict application of the U.S. definition has not been made on this point. For further information, see *Monthly Labor Review*, December 1981, pp. 8–11.

The figures for one or more recent years for France, Germany, Italy, the Netherlands, and the United Kingdom are calculated using adjustment factors based on labor force surveys for earlier years and are considered preliminary. The recent-year measures for these countries, therefore, are subject to revision whenever data from more current labor force surveys become available.

There are breaks in the data series for the United States (1990, 1994), France (1992), Italy (1991, 1993), the Netherlands (1988), and Sweden (1987).

For the United States, the break in series reflects a major redesign of the labor force survey questionnaire and collection methodology introduced in January 1994. Revised population estimates based on the 1990 census, adjusted for the estimated undercount, also were incorporated. In 1996, previously published data for the 1990–93 period were revised to reflect the 1990 census-based population controls, adjusted for the undercount. Therefore, data for 1994 onward are not directly comparable with data for 1993 and earlier years because of the redesign, and data for 1990 onward are not directly comparable with data for 1989 and earlier years because of the introduction of the 1990 census-based population controls, adjusted for the undercount. See the Notes section on Employment and Unemployment Data of this *Review*.

For France, the 1992 break reflects the substitution of standardized European Union Statistical Office (EUROSTAT) unemployment statistics for the unemployment data estimated according to the International Labor Office (ILO) definition and published in the Organization for Economic Cooperation and Development (OECD) annual yearbook and quarterly update. This change was made because the EUROSTAT data are more up-to-date than the OECD figures. Also, since 1992, the EUROSTAT definitions are closer to the U.S. definitions than they were in prior years. The impact of this revision was to lower the unemployment rate by 0.1 percentage point in 1992 and 1993, by 0.4 percentage point in 1994, and 0.6 percentage point in 1995.

For Italy, the 1991 break reflects a revision in the method of weighting sample data. The impact was to increase the unemployment rate by approximately 0.3 percentage point, from 6.6 to 6.9 percent in 1991.

In October 1992, the survey methodology was revised and the definition of unemployment was changed to include only those who were actively looking for a job within the 30 days preceding the survey and who

were available for work. In addition, the lower age limit for the labor force was raised from 14 to 15 years. (Prior to these changes, BLS adjusted Italy's published unemployment rate downward by excluding from the unemployed those persons who had not actively sought work in the past 30 days.) The break in the series also reflects the incorporation of the 1991 population census results. The impact of these changes was to raise Italy's adjusted unemployment rate by approximately 1.2 percentage points, from 8.3 to 9.5 percent in fourth-quarter 1992. These changes did not affect employment significantly, except in 1993. Estimates by the Italian Statistical Office indicate that employment declined by about 3 percent in 1993, rather than the nearly 4 percent indicated by the data shown in table 44. This difference is attributable mainly to the incorporation of the 1991 population benchmarks in the 1993 data. Data for earlier years have not been adjusted to incorporate the 1991 census results.

For the Netherlands, a new survey questionnaire was introduced in 1992 that allowed for a closer application of ILO guidelines. EUROSTAT has revised the Dutch series back to 1988 based on the 1992 changes. The 1988 revised unemployment rate is 7.6 percent; the previous estimate for the same year was 9.3 percent.

There have been two breaks in series in the Swedish labor force survey, in 1987 and 1993. Adjustments have been made for the 1993 break back to 1987. In 1987, a new questionnaire was introduced. Questions regarding current availability were added and the period of active workseeking was reduced from 60 days to 4 weeks. These changes lowered Sweden's 1987 unemployment rate by 0.4 percentage point, from 2.3 to 1.9 percent. In 1993, the measurement period for the labor force survey was changed to represent all 52 weeks of the year rather than one week each month and a new adjustment for population totals was introduced. The impact was to raise the unemployment rate by approximately 0.5 percentage point, from 7.6 to 8.1 percent. Statistics Sweden revised its labor force survey data for 1987–92 to take into account the break in 1993. The adjustment raised the Swedish unemployment rate by 0.2 percentage point in 1987 and gradually rose to 0.5 percentage point in 1992.

Beginning with 1987, BLS has adjusted the Swedish data to classify students who also sought work as unemployed. The impact of this change was to increase the adjusted unemployment rate by 0.1 percentage point in 1987 and by 1.8 percentage points in 1994, when unemployment was higher. By 1994, the adjusted unemployment rate had risen from 7.8 to 9.6 percent due to the adjustment to include students.

The net effect of the 1987 and 1993 changes and the BLS adjustment for students seeking work lowered Sweden's 1987 unemployment rate from 2.3 to 2.2 percent.

FOR ADDITIONAL INFORMATION on this series, contact the Division of Foreign Labor Statistics: (202) 606–5654.

Manufacturing productivity and labor costs

Description of the series

Table 45 presents comparative indexes of manufacturing labor productivity (output per hour), output, total hours, compensation per hour, and unit labor costs for the United States, Canada, Japan, and nine European countries. These measures are trend comparisons—that is, series that measure changes over time—rather than level comparisons. There are greater technical problems in comparing the levels of manufacturing output among countries.

BLS constructs the comparative indexes from three basic aggregate measures—output, total labor hours, and total compensation. The hours and compensation measures refer to all employed persons (wage and salary earners plus self-employed persons and unpaid family workers) in the United States, Canada, Japan, France, Germany, Norway, and Sweden, and to all employees (wage and salary earners) in the other countries.

Definitions

Output, in general, refers to value added in manufacturing from the national accounts of each country. However, the output series for Japan prior to 1970 is an index of industrial production, and the national accounts measures for the United Kingdom are essentially identical to their indexes of industrial production. While methods of deriving national accounts measures differ from country to country, BLS has reviewed these methods and determined that the series are sufficiently comparable for measuring comparative trends in productivity and unit labor costs.

The 1977–94 output data for the United States are the gross product originating (value added) measures prepared by the Bureau of Economic Analysis of the U.S. Department of Commerce. Comparable manufacturing output data currently are not available prior to 1977. The 1994–95 percent changes in manufacturing output are based on the trend shown by the industrial production index published by the U.S. Federal Reserve Board for the manufacturing sector.

U.S. gross product originating is a chain-type annual-weighted series. (For more information on the U.S. measure, see Robert E. Yuskavage, "Improved Estimates of Gross Product by Industry, 1959–94," *Survey of Current Business*, August 1996, pp. 133–55.) The Japanese value added series is based upon one set of fixed price weights for the years 1970 through 1996. Output series for the other foreign economies also employ fixed price weights, but the weights are updated periodically (for example, every 5 or 10 years).

To preserve the comparability of the U.S. measures with those for other economies, BLS uses gross product originating in manufacturing for the United States for these comparative measures. The gross product originating series differs from the manufacturing output series that BLS publishes in its news releases on quarterly measures of U.S. productivity and costs (and that underlies the measures that appear in tables 39 and 41 in this section). The quarterly measures are on a "sectoral output" basis, rather than a value-added basis. Sectoral output is gross output less intrasector transactions.

Total labor hours refers to hours worked in all countries. The measures are developed from statistics of manufacturing employment and average hours. The series used for France (from 1970 forward), Norway, and Sweden are official series published with the national accounts. Where official total hours series are not available, the measures are developed by BLS using employment figures published with the national accounts, or other comprehensive employment series, and estimates of annual hours worked. For Germany, BLS uses estimates of average hours worked developed by a research institute connected to the Ministry of Labor for use with the national accounts employment figures. For the other countries, BLS constructs its own estimates of average hours.

Denmark has not published estimates of average hours for 1994–96; therefore, the BLS measure of labor input for Denmark ends in 1993.

Total compensation (labor cost) includes all payments in cash or in-kind made directly to employees plus employer expenditures for legally required insurance programs and contractual and private benefit plans. The measures are from the national accounts of each country, except those for Belgium, which are developed by BLS using statistics on employment, average hours, and hourly compensation. For France and Sweden, compensation is increased to account for other significant taxes on payroll or employment. For the United Kingdom, compensation is reduced between 1967 and 1991to account for employment-related subsidies. Self-employed workers are included in the all-employed-persons measures by assuming that their hourly compensation is equal to the average for wage and salary employees.

Notes on the data

In general, the measures relate to total manufacturing as defined by the International Standard Industrial Classification. However, the measures for France (for all years) and Italy (beginning 1970) refer to mining and manufacturing less energy-related products, and the measures for Denmark include mining and exclude manufacturing handicrafts from 1960 to 1966.

The measures for recent years may be based on current indicators of manufacturing output (such as industrial production indexes), employment, average hours, and hourly compensation until national accounts and other statistics used for the long-term measures become available.

FOR ADDITIONAL INFORMATION on this series, contact the Division of Foreign Labor Statistics: (202) 606–5654.

Occupational Injury and Illness Data

(Table 46–47)

Survey of Occupational Injuries and Illnesses

Description of the series

The Survey of Occupational Injuries and Illnesses collects data from employers about their workers' job-related nonfatal injuries and illnesses. The information that employers provide is based on records that they maintain under the Occupational Safety and Health Act of 1970. Self-employed individuals, farms with fewer than 11 employees, employers regulated by other Federal safety and health laws, and Federal, State, and local government agencies are excluded from the survey.

The survey is a Federal-State cooperative program with an independent sample selected for each participating State. A stratified random sample with a Neyman allocation is selected to represent all private industries in the State. The survey is stratified by Standard Industrial Classification and size of employment.

Definitions

Under the Occupational Safety and Health Act, employers maintain records of nonfatal work-related injuries and illnesses that involve one or more of the following: loss of consciousness, restriction of work or motion, transfer to another job, or medical treatment other than first aid.

Occupational injury is any injury such as a cut, fracture, sprain, or amputation that results from a work-related event or a single, instantaneous exposure in the work environment.

Occupational illness is an abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to factors associated with employment. It includes acute and chronic illnesses or disease which may be caused by inhalation, absorption, ingestion, or direct contact.

Lost workday injuries and illnesses are cases that involve days away from work, or days of restricted work activity, or both.

Lost workdays include the number of workdays (consecutive or not) on which the employee was either away from work or at work in some restricted capacity, or both, because of an occupational injury or illness. BLS measures of the number and incidence rate of lost workdays were discontinued beginning with the 1993 survey. The number of days away from work or days of restricted work activity does not include the day of injury or onset of illness or any days on which the employee would not have worked, such as a Federal holiday, even though able to work.

Incidence rates are computed as the number of injuries and/or illnesses or lost work days per 100 full-time workers.

Notes on the data

The definitions of occupational injuries and illnesses are from *Recordkeeping Guidelines for Occupational Injuries and Illnesses* (U.S. Department of Labor, Bureau of Labor Statistics, September 1986).

Estimates are made for industries and employment size classes for total recordable cases, lost workday cases, days away from work cases, and nonfatal cases without lost workdays. These data also are shown separately for injuries. Illness data are available for seven categories: occupational skin diseases or disorders, dust diseases of the lungs, respiratory conditions due to toxic agents, poisoning (systemic effects of toxic agents), disorders due to physical agents (other than toxic materials), disorders associated with repeated trauma, and all other occupational illnesses.

The survey continues to measure the number of new work-related illness cases which are recognized, diagnosed, and reported during the year. Some conditions, for example, long-term latent illnesses caused by exposure to carcinogens, often are difficult to relate to the workplace and are not adequately recognized and reported. These long-term latent illnesses are believed to be understated in the survey's illness measure. In contrast, the overwhelming majority of the reported new illnesses are those which are easier to directly relate to workplace activity (for example, contact dermatitis and carpal tunnel syndrome).

Most of the estimates are in the form of incidence rates, defined as the number of injuries and illnesses per 100 equivalent full-time workers. For this purpose, 200,000 employee hours represent 100 employee years (2,000 hours per employee). Full detail on the available measures is presented in the annual bulletin, *Occupational Injuries and Illnesses: Counts, Rates, and Characteristics.*

Comparable data for more than 40 States and territories are available from the BLS Office of Safety, Health and Working Conditions. Many of these States publish data on State and local government employees in addition to private industry data.

Mining and railroad data are furnished to BLS by the Mine Safety and Health Administration and the Federal Railroad Administration. Data from these organizations are included in both the national and State data published annually.

With the 1992 survey, BLS began publishing details on serious, nonfatal incidents resulting in days away from work. Included are some major characteristics of the injured and ill workers, such as occupation, age, gender, race, and length of service, as well as the circumstances of their injuries and illnesses (nature of the disabling condition, part of body affected, event and exposure, and the source directly producing the condition). In general, these data are available nationwide for detailed industries and for individual States at more aggregated industry levels.

FOR ADDITIONAL INFORMATION on occupational injuries and illnesses, contact the Office of Occupational Safety, Health and Working Conditions at (202) 606–6180, or access the Internet at:

http://www.bls.gov/oshhome.htm

Census of Fatal Occupational Injuries

The Census of Fatal Occupational Injuries compiles a complete roster of fatal job-related injuries, including detailed data about the fatally injured workers and the fatal events. The program collects and cross checks fatality information from multiple sources, including death certificates, State and Federal workers' compensation reports, Occupational Safety and Health Administration and Mine Safety and Health Administration records, medical examiner and autopsy reports, media accounts, State motor vehicle fatality records, and follow-up questionnaires to employers.

In addition to private wage and salary workers, the self-employed, family members, and Federal, State, and local government workers are covered by the program. Institutionalized persons, such as prison inmates, are excluded. To be included in the

fatality census, the decedent must have been employed (that is working for pay, compensation, or profit) at the time of the event, engaged in a legal work activity, or present at the site of the incident as a requirement of his or her job.

Definition

A fatal work injury is any intentional or unintentional wound or damage to the body resulting in death from acute exposure to energy, such as heat or electricity or kinetic energy from a crash, or from the absence of such essentials as heat or oxygen caused by a specific event or incident or series of events within a single workday or shift. Fatalities that occur during a person's commute to or from work are excluded from the census, as well as work-related illnesses, which can be difficult to identify due to long latency periods.

Notes on the data

Twenty-eight data elements are collected, coded, and tabulated in the fatality program, including information about the fatally injured worker, the fatal incident, and the machinery or equipment involved. Summary worker demographic data and event characteristics are included in a national news release that is available about 8 months after the end of the reference year. The Census of Fatal Occupational Injuries was initiated in 1992 as a joint Federal-State effort. Most States issue summary information at the time of the national news release.

FOR ADDITIONAL INFORMATION on the Census of Fatal Occupational Injuries contact the BLS Office of Safety, Health, and Working Conditions at (202) 606–6175, or the Internet at:

http://www.bls.gov/oshhome.htm

1. Labor market indicators

Selected indicators	1996	1997	1996			1997				1998
			II	III	IV	I	II	III	IV	I
Employment data										
Employment status of the civilian noninstitutionalized population (household survey):[1]										
Labor force participation rate	66.8	67.1	66.7	66.8	67.0	67.1	67.1	67.1	67.1	67.3
Employment-population ratio	63.2	63.8	63.1	63.3	63.4	63.6	63.8	63.8	64.0	64.1
Unemployment rate	5.4	4.9	5.4	5.3	5.3	5.3	4.9	4.9	4.7	4.7
Men	5.4	4.9	5.5	5.3	5.2	5.2	4.8	4.8	4.7	4.5
16 to 24 years	12.6	11.8	12.7	12.4	12.3	12.3	11.5	11.8	11.6	11.4
25 years and over	4.1	3.6	4.1	4.0	3.9	3.9	3.6	3.5	3.4	3.3
Women	5.4	5.0	5.4	5.3	5.5	5.4	5.1	5.0	4.7	4.9
16 to 24 years	11.3	10.7	11.0	11.1	11.4	11.5	10.9	10.5	10.1	10.1
25 years and over	4.3	3.9	4.3	4.2	4.3	4.2	3.9	3.9	3.6	3.8
Employment, nonfarm (payroll data), in thousands:[1]										
Total	119,608	122,690	119,273	119,974	120,655	121,461	122,317	122,995	123,934	124,795
Private sector	100,189	103,120	99,865	100,553	101,223	102,001	102,797	103,392	104,271	105,084
Goods-producing	24,493	24,934	24,453	24,542	24,648	24,787	24,881	24,963	25,108	25,296
Manufacturing	18,495	18,657	18,485	18,503	18,526	18,579	18,625	18,672	18,756	18,825
Service-producing	95,115	97,756	94,820	95,432	96,008	96,674	97,436	98,032	98,826	99,500
Average hours:										
Private sector	34.4	34.6	34.4	34.5	34.5	34.6	34.6	34.6	34.7	34.7
Manufacturing	41.6	42.0	41.7	41.8	41.8	41.9	42.0	41.9	42.1	42.0
Overtime	4.5	4.8	4.5	4.6	4.5	4.8	4.8	4.8	4.9	4.8
Employment Cost Index[2]										
Percent change in the ECI, compensation:										
All workers (excluding farm, household and Federal workers)	2.9	3.3	.7	.8	.5	.8	.6	1.0	.8	.8
Private industry workers	3.1	3.4	.9	.6	.6	.8	.8	.8	.9	.9
Goods-producing[3]	2.8	2.4	.9	.6	.6	.4	1.0	.7	.4	.7
Service-producing[3]	3.2	3.9	.8	.7	.5	1.1	.7	1.0	1.1	1.0
State and local government workers	2.6	2.3	.2	1.3	.6	.4	.1	1.3	.5	.6
Workers by bargaining status (private industry):										
Union	2.4	2.1	.9	.3	.5	.2	.6	1.1	.2	.4
Nonunion	3.1	3.8	.8	.8	.5	1.1	.8	.8	1.0	1.0

[1] Quarterly data seasonally adjusted.

[2] Annual changes are December-to-December changes. Quarterly changes are calculated using the last month of each quarter.

[3] Goods-producing industries include mining, construction, and manufacturing. Service-producing industries include all other private sector industries.

2. Annual and quarterly percent changes in compensation, prices, and productivity

Selected measures	1996	1997	1996			1997				1998
			II	III	IV	I	II	III	IV	I
Compensation data[1,2]										
Employment Cost Index—compensation (wages, salaries, benefits):										
Civilian nonfarm	2.9	3.3	0.7	0.8	0.5	0.8	0.6	1.0	0.8	0.8
Private nonfarm	3.1	3.4	.9	.6	.6	.8	.8	.8	.9	.9
Employment Cost Index—wages and salaries:										
Civilian nonfarm	3.3	3.8	.8	.9	.6	.9	.7	1.2	.9	.9
Private nonfarm	3.4	3.9	1.0	.7	.6	1.0	.9	1.0	1.0	1.1
Price data[1]										
Consumer Price Index (All Urban Consumers): All Items	3.3	1.7	.6	.7	.5	.9	.2	.6	.1	.6
Producer Price Index:										
Finished goods	2.8	−1.2	1.2	.1	.7	−.5	−.4	.2	−.5	−1.1
Finished consumer goods	3.6	−1.4	1.6	.3	.6	−.6	−.2	.4	−.8	−1.4
Capital equipment	.4	−.6	−.1	−.7	1.0	.1	−.5	−.7	.5	.0
Intermediate materials, supplies, and components	.7	−.8	1.0	.4	−.6	−.3	.1	.2	−.8	−1.4
Crude materials	14.7	−11.3	3.0	−.4	7.7	−11.5	−.4	1.3	−.6	−8.0
Productivity data[3]										
Output per hour of all persons:										
Business sector	2.0	1.8	3.1	−.7	2.0	1.6	2.2	3.5	1.6	1.7
Nonfarm business sector	1.9	1.7	2.9	−.7	1.9	1.1	2.3	3.6	1.4	1.1
Nonfinancial corporations[4]	3.1	2.6	4.1	2.7	2.1	1.7	2.4	6.3	.6	2.6

[1] Annual changes are December-to-December changes. Quarterly changes are calculated using the last month of each quarter. Compensation and price data are not seasonally adjusted, and the price data are not compounded.

[2] Excludes Federal and private household workers.

[3] Annual rates of change are computed by comparing annual averages. Quarterly percent changes reflect annual rates of change in quarterly indexes. The data are seasonally adjusted.

[4] Output per hour of all employees.

3. Alternative measures of wage and compensation changes

Components	Quarterly average						Four quarters ending—					
	1996	1997				1998	1996	1997				1998
	IV	I	II	III	IV	I	IV	I	II	III	IV	I
Average hourly compensation:[1]												
All persons, business sector	3.4	4.1	3.1	4.2	5.6	4.2	4.0	4.1	3.6	3.7	4.3	4.3
All persons, nonfarm business sector	3.4	4.3	3.2	3.8	5.2	4.1	3.9	4.0	3.5	3.7	4.1	4.1
Employment Cost Index—compensation:												
Civilian nonfarm[2]	.5	.8	.6	1.0	.8	.8	2.9	2.9	2.8	3.0	3.3	3.3
Private nonfarm	.6	.8	.8	.8	.9	.9	3.1	3.0	2.9	3.2	3.4	3.5
Union	.5	.2	.6	1.1	.2	.4	2.4	1.9	1.6	2.4	2.1	2.3
Nonunion	.5	1.1	.8	.8	1.0	1.0	3.1	3.2	3.2	3.2	3.8	3.7
State and local governments	.6	.4	.1	1.3	.5	.6	2.6	2.5	2.4	2.4	2.3	2.5
Employment Cost Index—wages and salaries:												
Civilian nonfarm[2]	.6	.9	.7	1.2	.9	.9	3.3	3.3	3.2	3.5	3.8	3.7
Private nonfarm	.6	1.0	.9	1.0	1.0	1.1	3.4	3.4	3.3	3.6	3.9	4.0
Union	.5	.5	.7	1.1	.5	.5	2.6	2.6	2.2	2.8	2.8	2.9
Nonunion	.6	1.1	.9	1.0	1.1	1.1	3.6	3.4	3.5	3.7	4.2	4.2
State and local governments	.6	.4	.1	1.6	.6	.5	2.8	2.8	2.7	2.7	2.7	2.8

[1] Seasonally adjusted. "Quarterly average" is percent change from a quarter ago, at an annual rate.

[2] Excludes Federal and household workers.

4. Employment status of the population, by sex, age, race, and Hispanic origin, monthly data seasonally adjusted

[Numbers in thousands]

Employment status	Annual average		1997									1998			
	1996	1997	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
TOTAL															
Civilian noninstitutional population[1]	200,591	203,133	202,674	202,832	203,000	203,166	203,364	203,570	203,767	203,941	204,098	204,238	204,400	204,547	204,731
Civilian labor force	133,943	136,297	136,043	136,060	136,206	136,294	136,404	136,439	136,406	136,864	137,169	137,493	137,557	137,523	137,242
Participation rate	66.8	67.1	67.1	67.1	67.1	67.1	67.1	67.0	66.9	67.1	67.2	67.3	67.3	67.2	67.0
Employed	126,708	129,558	129,275	129,494	129,392	129,661	129,747	129,761	129,910	130,575	130,777	131,083	131,163	130,994	131,383
Employment-population ratio[2]	63.2	63.8	63.8	63.8	63.7	63.8	63.8	63.7	63.8	64.0	64.1	64.2	64.2	64.0	64.2
Unemployed	7,236	6,739	6,768	6,566	6,814	6,633	6,657	6,678	6,496	6,289	6,392	6,409	6,393	6,529	5,859
Unemployment rate	5.4	4.9	5.0	4.8	5.0	4.9	4.9	4.9	4.8	4.6	4.7	4.7	4.6	4.7	4.3
Not in the labor force	66,647	66,837	66,631	66,772	66,794	66,872	66,960	67,131	67,361	67,077	66,929	66,745	66,844	67,024	67,489
Men, 20 years and over															
Civilian noninstitutional population[1]	88,606	89,879	89,680	89,776	89,829	89,888	89,982	90,068	90,140	90,251	90,339	90,391	90,476	90,502	90,580
Civilian labor force	68,044	69,166	69,107	68,990	69,157	69,171	69,198	69,136	69,193	69,500	69,561	69,652	69,601	69,451	69,697
Participation rate	76.8	77.0	77.1	76.9	77.0	77.0	76.9	76.8	76.8	77.0	77.0	77.1	76.9	76.7	76.9
Employed	64,897	66,284	66,198	66,309	66,258	66,361	66,386	66,298	66,337	66,824	66,676	67,008	66,990	66,753	67,301
Employment-population ratio[2]	73.2	73.7	73.8	73.9	73.8	73.8	73.8	73.6	73.6	74.0	73.8	74.1	74.0	73.8	74.3
Agriculture	2,356	2,356	2,411	2,402	2,398	2,390	2,311	2,383	2,298	2,323	2,314	2,282	2,264	2,168	2,420
Nonagricultural industries	62,541	63,927	63,787	63,907	63,860	63,971	64,075	63,915	64,039	64,501	64,362	64,726	64,726	64,585	64,881
Unemployed	3,146	2,882	2,909	2,681	2,899	2,810	2,812	2,838	2,856	2,676	2,885	2,644	2,611	2,699	2,396
Unemployment rate	4.6	4.2	4.2	3.9	4.2	4.1	4.1	4.1	4.1	3.9	4.1	3.8	3.8	3.9	3.4
Women, 20 years and over															
Civilian noninstitutional population[1]	97,050	97,889	97,685	97,767	97,834	97,919	98,000	98,082	98,144	98,212	98,300	98,420	98,471	98,534	98,583
Civilian labor force	58,094	59,198	58,975	59,129	59,195	59,232	59,362	59,432	59,338	59,348	59,624	59,652	59,721	59,771	59,486
Participation rate	59.9	60.5	60.4	60.5	60.5	60.5	60.6	60.6	60.5	60.4	60.7	60.6	60.6	60.7	60.3
Employed	55,311	56,613	56,357	56,488	56,575	56,693	56,789	56,883	56,919	56,953	57,255	57,040	57,146	57,186	57,075
Employment-population ratio[2]	57.0	57.8	57.7	57.8	57.8	57.9	57.9	58.0	58.0	58.0	58.2	58.0	58.0	58.0	57.9
Agriculture	827	798	775	760	755	831	824	826	814	833	845	811	801	717	705
Nonagricultural industries	54,484	55,815	55,582	55,728	55,820	55,862	55,965	56,057	56,105	56,120	56,410	56,229	56,345	56,470	56,370
Unemployed	2,783	2,585	2,618	2,641	2,620	2,539	2,573	2,549	2,419	2,395	2,369	2,612	2,575	2,585	2,411
Unemployment rate	4.8	4.4	4.4	4.5	4.4	4.3	4.3	4.3	4.1	4.0	4.0	4.4	4.3	4.3	4.1
Both sexes, 16 to 19 years															
Civilian noninstitutional population[1]	14,934	15,365	15,309	15,300	15,336	15,359	15,382	15,420	15,483	15,478	15,459	15,427	15,453	15,511	15,569
Civilian labor force	7,806	7,932	7,961	7,941	7,854	7,891	7,844	7,871	7,875	8,016	7,984	8,189	8,235	8,300	8,059
Participation rate	52.3	51.6	52.0	51.9	51.2	51.4	51.0	51.0	50.9	51.8	51.6	53.1	53.3	53.5	51.8
Employed	6,500	6,661	6,720	6,697	6,559	6,607	6,572	6,580	6,654	6,798	6,846	7,035	7,028	7,055	7,007
Employment-population ratio[2]	43.5	43.4	43.9	43.8	42.8	43.0	42.7	42.7	43.0	43.9	44.3	45.6	45.5	45.5	45.0
Agriculture	261	244	276	256	236	231	244	213	215	228	226	227	270	247	225
Nonagricultural industries	6,239	6,417	6,444	6,441	6,323	6,376	6,328	6,367	6,439	6,570	6,620	6,809	6,758	6,808	6,782
Unemployed	1,306	1,271	1,241	1,244	1,295	1,284	1,272	1,291	1,221	1,218	1,138	1,154	1,207	1,245	1,052
Unemployment rate	16.7	16.0	15.6	15.7	16.5	16.3	16.2	16.4	15.5	15.2	14.3	14.1	14.7	15.0	13.1
White															
Civilian noninstitutional population[1]	168,317	169,993	169,675	169,782	169,897	170,010	170,148	170,290	170,427	170,545	170,649	170,810	170,917	171,016	171,141
Civilian labor force	113,108	114,693	114,567	114,562	114,659	114,622	114,669	114,758	114,784	115,073	115,263	115,253	115,392	115,297	115,057
Participation rate	67.2	67.5	67.5	67.5	67.5	67.4	67.4	67.4	67.4	67.5	67.5	67.5	67.5	67.4	67.2
Employed	107,808	109,856	109,721	109,906	109,779	109,851	109,832	109,904	110,063	110,604	110,729	110,689	110,842	110,605	110,859
Employment-population ratio[2]	64.1	64.6	64.7	64.7	64.6	64.6	64.6	64.5	64.6	64.9	64.9	64.8	64.9	64.7	64.8
Unemployed	5,300	4,836	4,846	4,656	4,880	4,771	4,837	4,854	4,721	4,469	4,534	4,555	4,550	4,692	4,198
Unemployment rate	4.7	4.2	4.2	4.1	4.3	4.2	4.2	4.2	4.1	3.9	3.9	4.0	3.9	4.1	3.6
Black															
Civilian noninstitutional population[1]	23,604	24,003	23,923	23,950	23,978	24,006	24,043	24,081	24,117	24,149	24,180	24,196	24,229	24,257	24,289
Civilian labor force	15,134	15,529	15,389	15,424	15,426	15,524	15,728	15,691	15,555	15,638	15,709	15,788	15,885	15,971	15,907
Participation rate	64.1	64.7	64.3	64.4	64.3	64.7	65.4	65.2	64.5	64.8	65.0	65.3	65.6	65.8	65.5
Employed	13,542	13,969	13,864	13,837	13,836	14,040	14,237	14,180	14,067	14,128	14,149	14,316	14,349	14,498	14,499
Employment-population ratio[2]	57.4	58.2	58.0	57.8	57.7	58.5	59.2	28.9	58.3	58.5	58.5	59.2	59.2	59.8	59.7
Unemployed	1,592	1,560	1,525	1,587	1,590	1,484	1,491	1,511	1,488	1,510	1,560	1,472	1,535	1,473	1,408
Unemployment rate	10.5	10.0	9.9	10.3	10.3	9.6	9.5	9.6	9.6	9.7	9.9	9.3	9.7	9.2	8.9

See footnotes at end of table.

4. Continued—Employment status of the population, by sex, age, race, and Hispanic origin, monthly data seasonally adjusted

[Numbers in thousands]

Employment status	Annual average		1997									1998			
	1996	1997	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Hispanic origin															
Civilian noninstitutional population[1]	19,213	20,321	20,180	20,236	20,293	20,351	20,407	20,464	20,519	20,575	20,629	20,741	20,798	20,851	20,915
Civilian labor force	12,774	13,796	13,601	13,760	13,814	13,861	13,886	13,861	13,896	13,880	13,973	13,954	14,149	14,298	14,369
Participation rate	66.5	67.9	67.4	68.0	68.1	68.1	68.0	67.7	67.7	67.5	67.7	67.3	68.0	68.6	68.7
Employed	11,642	12,726	12,514	12,713	12,751	12,772	12,867	12,807	12,806	12,921	12,921	12,988	13,181	13,305	13,434
Employment-population ratio[2]	60.6	62.6	62.0	62.8	62.8	62.8	63.1	62.6	62.4	62.8	62.6	62.6	63.4	63.8	64.2
Unemployed	1,132	1,069	1,087	1,047	1,063	1,089	1,019	1,054	1,090	959	1,052	966	968	993	935
Unemployment rate	8.9	7.7	8.0	7.6	7.7	7.9	7.3	7.6	7.8	6.9	7.5	6.9	6.8	6.9	6.5

[1] The population figures are not seasonally adjusted.

[2] Civilian employment as a percent of the civilian noninstitutional population.

NOTE: Detail for the above race and Hispanic-origin groups will not sum to totals because data for the "other races" groups are not presented and Hispanics are included in both the white and black population groups.

5. Selected employment indicators, monthly data seasonally adjusted

[In thousands]

Selected categories	Annual average		1997									1998			
	1996	1997	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Characteristic															
Employed, 16 years and over	126,708	129,558	129,275	129,494	129,392	129,661	129,747	129,761	129,910	130,575	130,777	131,083	131,163	130,994	131,383
Men	68,207	69,685	69,565	69,765	69,586	69,711	69,748	69,656	69,785	70,352	70,195	70,518	70,459	70,297	70,831
Women	58,501	59,873	59,710	59,729	59,806	59,950	59,999	60,105	60,125	60,223	60,582	60,565	60,704	60,697	60,553
Married men, spouse present	42,417	42,642	42,426	42,357	42,476	42,582	42,680	42,648	42,771	42,967	42,952	42,977	42,915	42,779	42,865
Married women, spouse present	32,406	32,755	32,549	32,520	32,654	32,813	32,861	32,846	32,978	32,840	32,975	32,793	32,821	32,872	32,973
Women who maintain families	7,363	7,775	7,790	7,820	7,820	7,875	7,892	7,876	7,865	7,726	7,822	7,784	7,884	7,776	7,813
Class of worker															
Agriculture:															
Wage and salary workers	1,869	1,890	1,952	1,917	1,912	1,897	1,853	1,889	1,815	1,855	1,844	1,949	1,928	1,866	1,987
Self-employed workers	1,518	1,457	1,438	1,442	1,429	1,478	1,477	1,495	1,475	1,493	1,496	1,348	1,324	1,242	1,324
Unpaid family workers	56	51	62	52	47	52	50	44	55	49	54	44	41	32	28
Nonagricultural industries:															
Wage and salary workers	114,171	116,983	116,515	116,874	116,642	117,146	117,372	117,303	117,635	118,083	118,403	118,529	118,961	119,131	118,774
Government	18,217	18,131	18,048	17,863	18,113	18,303	18,203	18,109	18,075	18,170	18,248	18,421	18,378	18,072	18,202
Private industries	95,954	98,852	98,467	99,011	98,529	98,843	99,169	99,194	99,560	99,913	100,155	100,108	100,583	101,058	100,571
Private households	928	915	923	948	888	911	935	877	877	910	946	985	1,035	1,022	1,014
Other	95,025	97,937	97,544	98,063	97,641	97,932	98,234	98,317	98,683	99,003	99,209	99,123	99,547	100,037	99,557
Self-employed workers	8,971	9,056	9,124	9,098	9,089	8,927	8,955	8,949	8,930	9,004	8,886	8,964	8,761	8,784	9,069
Unpaid family workers	122	120	133	142	128	129	126	83	92	97	99	131	117	102	124
Persons at work part time[1]															
All industries:															
Part time for economic reasons	4,315	4,068	4,360	4,060	4,049	4,019	3,988	3,928	3,913	3,890	3,855	4,082	3,882	3,902	3,735
Slack work or business conditions	2,388	2,286	2,402	2,295	2,347	2,236	2,164	2,187	2,211	2,221	2,230	2,282	2,123	2,188	2,074
Could only find part-time work	1,605	1,468	1,625	1,440	1,373	1,489	1,487	1,455	1,406	1,386	1,323	1,400	1,455	1,445	1,300
Part time for noneconomic reasons	17,770	18,149	18,155	18,218	18,205	18,055	18,096	17,901	18,113	18,083	18,386	18,515	18,407	18,448	18,084
Nonagricultural industries:															
Part time for economic reasons	4,123	3,879	4,204	3,853	3,819	3,858	3,832	3,739	3,732	3,689	3,654	3,865	3,743	3,726	3,608
Slack work or business conditions	2,263	2,167	2,279	2,166	2,202	2,121	2,066	2,067	2,103	2,100	2,113	2,162	2,025	2,057	1,998
Could only find part-time work	1,576	1,433	1,599	1,402	1,320	1,462	1,455	1,417	1,378	1,346	1,291	1,373	1,433	1,416	1,276
Part time for noneconomic reasons	17,150	17,564	17,588	17,654	17,577	17,452	17,521	17,381	17,537	17,486	17,791	17,898	17,786	17,929	17,470

[1] Excludes persons "with a job but not at work" during the survey period for such reasons as vacation, illness, or industrial disputes.

6. Selected unemployment indicators, monthly data seasonally adjusted

[Unemployment rates]

Selected categories	Annual average		1997									1998			
	1996	1997	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Characteristic															
Total, all workers	5.4	4.9	5.0	4.8	5.0	4.9	4.9	4.9	4.8	4.6	4.7	4.7	4.6	4.7	4.3
Both sexes, 16 to 19 years	16.7	16.0	15.6	15.7	16.5	16.3	16.2	16.4	15.5	15.2	14.3	14.1	14.7	15.0	13.1
Men, 20 years and over	4.6	4.2	4.2	3.9	4.2	4.1	4.1	4.1	4.1	3.9	4.1	3.8	3.8	3.9	3.4
Women, 20 years and over	4.8	4.4	4.4	4.5	4.4	4.3	4.3	4.3	4.1	4.0	4.0	4.4	4.3	4.3	4.1
White, total	4.7	4.2	4.2	4.1	4.3	4.2	4.2	4.2	4.1	3.9	3.9	4.0	3.9	4.1	3.6
Both sexes, 16 to 19 years	14.2	13.6	13.5	12.9	14.4	14.4	14.2	14.1	13.4	12.3	11.2	11.6	12.3	12.8	11.8
Men, 16 to 19 years	15.5	14.3	14.6	13.0	15.8	15.0	15.1	14.4	14.3	12.8	11.3	14.2	14.7	14.9	12.7
Women, 16 to 19 years	12.9	12.8	12.2	12.7	12.8	13.7	13.1	13.7	12.3	11.6	11.1	8.8	9.8	10.6	10.7
Men, 20 years and over	4.1	3.6	3.6	3.3	3.6	3.5	3.6	3.6	3.6	3.4	3.6	3.3	3.2	3.4	2.9
Women, 20 years and over	4.1	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.4	3.4	3.7	3.6	3.7	3.4
Black, total	10.5	10.0	9.9	10.3	10.3	9.6	9.5	9.6	9.6	9.7	9.9	9.3	9.7	9.2	8.9
Both sexes, 16 to 19 years	33.6	32.4	31.9	33.9	32.2	30.0	30.4	32.7	29.5	33.3	34.4	30.1	31.5	29.1	24.7
Men, 16 to 19 years	36.9	36.5	37.7	34.5	39.1	34.6	33.9	37.6	30.1	35.0	36.2	31.8	34.7	27.8	23.9
Women, 16 to 19 years	30.3	28.7	26.3	33.3	25.5	25.9	27.2	28.6	28.8	31.9	33.1	28.5	28.4	30.3	25.3
Men, 20 years and over	9.4	8.5	8.4	8.4	9.0	8.3	7.9	7.9	8.3	7.8	8.6	7.9	7.8	7.6	7.4
Women, 20 years and over	8.7	8.8	8.6	9.2	9.0	8.4	8.4	8.4	8.3	8.4	8.1	8.0	8.6	8.2	8.2
Hispanic origin, total	8.9	7.7	8.0	7.6	7.7	7.9	7.3	7.6	7.8	6.9	7.5	6.9	6.8	6.9	6.5
Married men, spouse present	3.0	2.7	2.7	2.7	2.7	2.6	2.6	2.6	2.6	2.4	2.6	2.6	2.5	2.5	2.2
Married women, spouse present	3.6	3.1	3.2	3.2	3.2	3.1	3.0	3.1	2.8	2.8	2.8	3.1	3.1	3.3	2.8
Women who maintain families	8.2	8.1	7.9	7.9	8.0	7.6	8.0	7.8	7.8	8.1	7.7	7.6	7.6	7.6	7.6
Full-time workers	5.3	4.8	4.8	4.8	4.9	4.8	4.7	4.7	4.7	4.4	4.6	4.5	4.5	4.5	4.2
Part-time workers	5.8	5.5	5.6	5.3	5.3	5.4	5.5	5.5	5.3	5.4	5.0	5.4	5.2	5.7	4.8
Industry															
Nonagricultural wage and salary workers	5.5	5.0	5.0	5.0	5.0	4.9	5.0	5.0	4.8	4.7	4.8	4.7	4.7	4.7	4.3
Mining	5.1	3.8	2.3	3.3	2.8	4.1	4.9	3.4	4.5	3.3	3.3	4.0	2.6	3.7	2.3
Construction	10.1	9.0	8.8	8.6	8.8	8.7	9.0	8.7	8.7	7.9	8.9	7.9	7.8	8.6	6.3
Manufacturing	4.8	4.2	4.4	4.3	4.2	4.3	4.1	4.1	3.8	3.6	3.8	3.9	3.7	3.8	3.9
Durable goods	4.5	3.5	3.6	3.6	3.6	3.5	3.5	3.3	3.1	3.1	3.1	3.4	2.9	3.6	3.5
Nondurable goods	5.2	5.1	5.5	5.3	5.0	5.4	5.0	5.3	4.8	4.4	4.9	4.5	5.0	4.2	4.4
Transportation and public utilities	4.1	3.5	2.9	3.6	3.0	3.4	3.7	3.8	3.3	3.1	3.3	3.8	3.2	3.3	3.1
Wholesale and retail trade	6.4	6.2	6.2	6.1	6.4	6.1	6.2	6.2	6.1	6.2	5.8	5.9	5.8	5.4	5.2
Finance, insurance, and real estate	2.7	3.0	3.3	3.1	2.5	3.1	3.0	3.0	2.9	2.4	2.8	2.6	2.6	2.6	2.2
Services	5.4	4.6	4.6	4.7	4.7	4.4	4.5	4.6	4.3	4.4	4.5	4.3	4.7	4.7	4.3
Government workers	2.9	2.6	2.4	2.5	2.8	2.7	2.6	2.6	2.4	2.3	2.1	2.4	2.3	2.9	2.0
Agricultural wage and salary workers	10.2	9.1	9.5	7.6	10.4	8.4	8.9	9.0	9.6	8.6	9.7	10.6	8.6	9.7	8.0
Educational attainment[1]															
Less than a high school diploma	8.7	8.1	8.2	8.2	8.2	7.8	7.7	8.0	7.7	7.5	7.6	7.2	7.0	7.2	7.0
High school graduates, no college	4.7	4.3	4.2	4.2	4.4	4.2	4.3	4.2	4.2	3.8	4.1	3.9	4.0	4.2	3.9
Some college, less than a bachelor's degree	3.7	3.3	3.3	3.0	3.2	3.2	3.2	3.2	2.9	3.1	3.2	3.2	3.1	3.3	2.7
College graduates	2.2	2.0	2.0	2.1	2.1	2.1	2.1	2.0	1.9	1.8	1.8	1.9	1.9	1.9	1.7

[1] Data refer to persons 25 years and over.

7. Duration of unemployment, monthly data seasonally adjusted

[Numbers in thousands]

Weeks of unemployment	Annual average		1997									1998			
	1996	1997	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Less than 5 weeks	2,633	2,538	2,471	2,542	2,541	2,446	2,564	2,484	2,558	2,423	2,531	2,488	2,622	2,858	2,632
5 to 14 weeks	2,287	2,138	2,177	2,067	2,188	2,097	2,121	2,115	1,912	2,048	1,922	1,971	1,909	1,979	1,901
15 weeks and over	2,316	2,062	2,088	2,076	2,069	2,128	2,027	2,109	1,990	1,865	1,964	1,811	1,830	1,731	1,417
15 to 26 weeks	1,053	995	1,033	1,054	1,031	1,061	950	1,031	919	899	936	773	855	841	584
27 weeks and over	1,262	1,067	1,055	1,022	1,038	1,067	1,077	1,078	1,071	966	1,028	1,038	974	891	833
Mean duration, in weeks	16.7	15.8	15.4	15.3	15.3	16.5	15.8	15.9	16.3	15.6	16.3	15.6	15.6	14.3	14.3
Median duration, in weeks	8.3	8.0	8.1	7.8	7.9	8.2	7.9	8.1	7.7	7.8	7.7	7.4	7.2	6.8	6.4

8. Unemployed persons by reason for unemployment, monthly data seasonally adjusted

[Numbers in thousands]

Reason for unemployment	Annual average		1997									1998			
	1996	1997	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Job losers[1]	3,370	3,037	3,038	2,961	3,094	2,954	3,010	3,007	2,934	2,886	2,991	2,807	2,795	2,980	2,631
On temporary layoff	1,021	931	958	909	928	894	891	893	963	815	961	860	821	980	696
Not on temporary layoff	2,349	2,106	2,080	2,052	2,166	2,060	2,119	2,114	1,971	2,071	2,030	1,947	1,975	2,000	1,935
Job leavers	774	795	776	808	827	812	894	853	732	655	692	808	786	744	625
Reentrants	2,512	2,338	2,422	2,338	2,333	2,263	2,173	2,263	2,247	2,229	2,170	2,229	2,266	2,215	2,096
New entrants	580	569	569	573	510	564	554	560	555	560	552	518	543	549	511
Percent of unemployed															
Job losers[1]	46.6	45.1	44.6	44.3	45.7	44.8	45.4	45.0	45.4	45.6	46.7	44.1	43.7	45.9	44.9
On temporary layoff	14.1	13.8	14.1	13.6	13.7	13.6	13.4	13.4	14.9	12.9	15.0	13.5	12.8	15.1	11.9
Not on temporary layoff	32.5	31.3	30.6	30.7	32.0	31.2	32.0	31.6	30.5	32.7	31.7	30.6	30.9	30.8	33.0
Job leavers	10.7	11.8	11.4	12.1	12.2	12.3	13.5	12.8	11.3	10.3	10.8	12.7	12.3	11.5	10.7
Reentrants	34.7	34.7	35.6	35.0	34.5	34.3	32.8	33.9	34.7	35.2	33.9	35.0	35.5	34.1	35.7
New entrants	8.0	8.4	8.4	8.6	7.5	8.6	8.4	8.4	8.6	8.8	8.6	8.1	8.5	8.5	8.7
Percent of civilian labor force															
Job losers[1]	2.5	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.1	2.2	2.0	2.0	2.2	1.9
Job leavers	.6	.6	.6	.6	.6	.6	.7	.6	.5	.5	.5	.6	.6	.5	.5
Reentrants	1.9	1.7	1.8	1.7	1.7	1.7	1.6	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.5
New entrants	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4

[1] Includes persons who completed temporary jobs.

9. Unemployment rates by sex and age, monthly data seasonally adjusted

[Civilian workers]

Sex and age	Annual average		1997									1998			
	1996	1997	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Total, 16 years and over	5.4	4.9	5.0	4.8	5.0	4.9	4.9	4.9	4.8	4.6	4.7	4.7	4.6	4.7	4.3
16 to 24 years	12.0	11.3	11.3	11.0	11.4	11.0	11.3	11.2	11.1	10.9	10.6	10.8	10.8	10.7	9.5
16 to 19 years	16.7	16.0	15.6	15.7	16.5	16.3	16.2	16.4	15.5	15.2	14.3	14.1	14.7	15.0	13.1
16 to 17 years	18.9	18.2	18.4	18.3	17.3	17.9	17.9	19.3	17.5	17.6	17.7	17.3	18.5	16.9	15.2
18 to 19 years	15.2	14.5	13.6	13.9	15.9	15.5	15.4	14.5	14.1	13.6	11.7	11.6	11.3	13.7	11.6
20 to 24 years	9.3	8.5	8.8	8.2	8.4	7.9	8.4	8.2	8.5	8.4	8.5	8.9	8.5	8.0	7.4
25 years and over	4.2	3.8	3.7	3.7	3.8	3.7	3.7	3.7	3.6	3.4	3.6	3.5	3.5	3.6	3.2
25 to 54 years	4.3	3.9	3.8	3.9	3.9	3.8	3.8	3.8	3.7	3.5	3.7	3.6	3.6	3.8	3.3
55 years and over	3.4	3.0	2.9	2.9	3.1	3.0	3.0	3.1	2.8	2.8	2.8	2.7	2.7	2.9	2.5
Men, 16 years and over	5.4	4.9	4.9	4.5	5.0	4.8	4.8	4.8	4.8	4.5	4.7	4.5	4.5	4.6	4.0
16 to 24 years	12.6	11.8	11.8	10.7	11.9	11.5	11.9	12.0	12.0	11.6	11.1	11.2	11.7	11.2	9.7
16 to 19 years	18.1	16.9	17.4	15.7	18.2	17.2	17.3	17.2	16.3	15.6	14.2	16.4	17.0	16.5	14.0
16 to 17 years	20.8	19.1	20.2	18.5	19.7	18.8	18.1	18.8	18.2	18.2	18.4	18.3	21.0	18.5	14.9
18 to 19 years	16.3	15.4	15.5	14.0	17.4	16.1	17.3	16.1	14.8	14.1	11.1	14.9	13.1	15.2	13.3
20 to 24 years	9.5	8.9	8.7	7.8	8.3	8.3	8.8	9.1	9.5	9.3	9.3	8.1	8.7	8.1	7.3
25 years and over	4.1	3.6	3.7	3.5	3.7	3.6	3.6	3.5	3.5	3.2	3.5	3.3	3.2	3.4	3.0
25 to 54 years	4.2	3.7	3.8	3.6	3.8	3.7	3.6	3.6	3.6	3.3	3.6	3.4	3.2	3.5	3.0
55 years and over	3.3	3.1	2.9	2.9	3.1	3.0	3.1	3.0	3.0	2.9	3.4	3.1	2.9	3.1	2.6
Women, 16 years and over	5.4	5.0	5.0	5.1	5.0	5.0	5.0	5.0	4.7	4.7	4.6	4.8	4.8	4.9	4.6
16 to 24 years	11.3	10.7	10.8	11.3	10.8	10.4	10.6	10.4	10.1	10.1	10.2	10.4	9.8	10.1	9.2
16 to 19 years	15.2	15.0	13.7	15.6	14.7	15.3	15.0	15.5	14.7	14.7	14.3	11.6	12.3	13.4	12.1
16 to 17 years	16.9	17.2	16.6	18.1	14.7	16.9	17.7	19.8	16.7	17.0	17.0	16.3	16.0	15.2	15.5
18 to 19 years	14.0	13.6	11.6	13.9	14.2	14.8	13.3	12.8	13.4	13.0	12.4	8.2	9.5	12.2	9.8
20 to 24 years	9.0	8.1	9.0	8.7	8.5	7.5	7.9	7.3	7.4	7.4	7.6	9.7	8.3	7.9	7.5
25 years and over	4.3	3.9	3.8	4.0	3.9	3.9	3.9	4.0	3.7	3.6	3.6	3.7	3.8	3.9	3.6
25 to 54 years	4.4	4.1	3.9	4.2	4.1	4.0	4.0	4.1	3.8	3.8	3.9	3.9	4.1	4.1	3.7
55 years and over	3.5	2.9	3.0	3.0	3.1	3.0	3.0	3.2	2.7	2.6	2.1	2.3	2.4	2.6	2.4

10. Unemployment rates by State, seasonally adjusted

State	Mar. 1997	Feb. 1998	Mar. 1998[p]	State	Mar. 1997	Feb. 1998	Mar. 1998[p]
Alabama	5.1	3.8	4.2	Missouri	4.4	4.1	4.2
Alaska	8.3	6.3	3.0	Montana	5.4	5.3	5.4
Arizona	4.9	4.0	4.4	Nebraska	2.9	1.9	2.2
Arkansas	5.4	5.3	5.7	Nevada	4.2	4.6	4.6
California	6.4	5.9	6.0	New Hampshire	3.0	2.8	2.9
Colorado	3.4	3.0	3.1	New Jersey	5.2	5.0	5.1
Connecticut	5.4	3.8	4.0	New Mexico	6.5	6.3	6.4
Delaware	4.5	3.5	3.4	New York	6.5	6.2	6.1
District of Columbia	7.8	9.1	9.3	North Carolina	3.6	3.7	3.9
Florida	4.9	4.6	4.7	North Dakota	2.8	1.9	2.3
Georgia	4.8	4.1	4.0	Ohio	4.7	4.2	4.3
Hawaii	6.6	5.7	5.8	Oklahoma	4.3	3.5	3.5
Idaho	5.5	5.0	5.2	Oregon	6.3	4.7	4.9
Illinois	4.8	4.6	4.5	Pennsylvania	5.4	4.7	4.8
Indiana	3.5	3.2	3.4	Rhode Island	5.5	4.9	5.0
Iowa	3.5	2.6	2.6	South Carolina	5.1	3.4	2.4
Kansas	3.8	3.4	3.4	South Dakota	3.2	2.6	2.7
Kentucky	5.7	4.1	4.4	Tennessee	5.5	4.3	4.7
Louisiana	6.3	4.3	4.7	Texas	5.6	4.6	4.7
Maine	5.5	4.6	4.3	Utah	3.1	2.9	3.1
Maryland	5.1	4.8	4.6	Vermont	4.1	3.5	3.4
Massachusetts	4.1	3.3	3.7	Virginia	4.2	3.3	3.3
Michigan	4.4	4.1	3.9	Washington	5.0	4.1	4.1
Minnesota	3.4	2.6	2.9	West Virginia	7.1	5.8	6.8
Mississippi	5.9	5.4	5.8	Wisconsin	3.7	2.9	3.1
				Wyoming	5.3	4.0	4.2

[p] = preliminary

11. Employment of workers on nonfarm payrolls by State, seasonally adjusted

[In thousands]

State	Mar. 1997	Feb. 1998	Mar. 1998[p]	State	Mar. 1997	Feb. 1998	Mar. 1998[p]
Alabama	1,859.4	1,877.2	1,878.4	Missouri	2,624.7	2,662.9	2,651.0
Alaska	267.0	273.1	273.3	Montana	362.9	370.6	370.0
Arizona	1,956.8	2,037.9	2,045.4	Nebraska	849.5	878.5	875.3
Arkansas	1,096.1	1,113.1	1,116.8	Nevada	879.7	912.8	915.1
California	13,011.6	13,439.9	13,474.4	New Hampshire	563.8	572.6	572.0
Colorado	1,954.8	2,019.9	2,022.1	New Jersey	3,701.9	3,784.2	3,786.8
Connecticut	1,605.6	1,641.2	1,639.9	New Mexico	702.4	713.1	714.0
Delaware	384.3	396.6	398.0	New York	8,004.3	8,098.6	8,113.8
District of Columbia	618.6	609.4	611.1	North Carolina	3,633.0	3,734.1	3,730.6
Florida	6,337.4	6,577.9	6,601.3	North Dakota	311.9	319.0	317.5
Georgia	3,585.9	3,707.4	3,721.9	Ohio	5,358.5	5,436.3	5,444.3
Hawaii	531.6	528.4	529.1	Oklahoma	1,380.0	1,410.7	1,415.6
Idaho	504.4	516.1	516.1	Oregon	1,514.1	1,557.3	1,557.0
Illinois	5,740.4	5,833.2	5,832.9	Pennsylvania	5,384.0	5,448.0	5,450.9
Indiana	2,851.6	2,878.8	2,885.5	Rhode Island	447.5	454.1	453.5
Iowa	1,396.1	1,426.1	1,429.0	South Carolina	1,711.3	1,767.8	1,773.7
Kansas	1,255.1	1,294.4	1,294.2	South Dakota	351.8	357.0	357.8
Kentucky	1,702.2	1,735.4	1,739.1	Tennessee	2,566.6	2,620.7	2,619.3
Louisiana	1,835.6	1,875.8	1,877.8	Texas	8,511.9	8,801.2	8,831.2
Maine	549.1	560.8	560.9	Utah	985.2	1,018.2	1,024.9
Maryland	2,254.2	2,282.4	2,277.7	Vermont	277.1	280.0	280.0
Massachusetts	3,099.1	3,185.5	3,189.3	Virginia	3,212.7	3,291.1	3,300.3
Michigan	4,432.1	4,506.7	4,506.5	Washington	2,484.1	2,558.5	2,565.2
Minnesota	2,464.4	2,522.3	2,528.1	West Virginia	705.6	715.6	715.4
Mississippi	1,100.6	1,120.9	1,116.2	Wisconsin	2,628.0	2,694.1	2,695.6
				Wyoming	222.9	222.4	223.8

[p] = preliminary

NOTE: Some data in this table may differ from data published elsewhere because of the continual updating of the data base.

12. Employment of workers on nonfarm payrolls by industry, monthly data seasonally adjusted

[In thousands]

Industry	Annual average		1997									1998			
	1996	1997	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.[p]	Apr.[p]
TOTAL	119,523	122,259	121,671	121,834	122,056	122,440	122,492	122,792	123,083	123,512	123,866	124,265	124,524	124,500	124,762
PRIVATE SECTOR	100,076	102,605	102,092	102,269	102,417	102,721	102,688	103,078	103,334	103,749	104,096	104,484	104,712	104,686	104,929
GOODS-PRODUCING	24,431	24,739	24,667	24,702	24,714	24,713	24,765	24,771	24,814	24,888	24,995	25,139	25,174	25,079	25,100
Mining	574	574	573	576	574	574	573	576	574	572	574	574	573	570	566
Metal mining	54	54	54	54	54	54	54	54	53	54	53	52	52	52	52
Oil and gas extraction	317	320	319	321	320	321	321	323	323	322	323	324	324	321	318
Nonmetallic minerals, except fuels	106	108	107	108	108	108	107	108	107	106	108	108	107	107	107
Construction	5,400	5,629	5,599	5,628	5,622	5,625	5,637	5,642	5,650	5,682	5,747	5,843	5,878	5,793	5,828
General building contractors	1,254	1,306	1,297	1,300	1,302	1,308	1,306	1,305	1,311	1,327	1,343	1,363	1,369	1,365	1,370
Heavy construction, except building	770	768	767	777	766	761	764	762	758	759	774	782	792	769	785
Special trades contractors	3,377	3,554	3,535	3,551	3,554	3,556	3,567	3,575	3,581	3,596	3,630	3,698	3,717	3,659	3,673
Manufacturing	18,457	18,537	18,495	18,498	18,518	18,514	18,555	18,553	18,590	18,634	18,674	18,722	18,723	18,716	18,706
Production workers	12,749	12,809	12,774	12,790	12,791	12,792	12,815	12,818	12,851	12,882	12,913	12,944	12,946	12,937	12,922
Durable goods	10,766	10,915	10,856	10,864	10,891	10,910	10,957	10,952	10,985	11,020	11,048	11,093	11,101	11,097	11,100
Production workers	7,370	7,489	7,440	7,454	7,466	7,482	7,525	7,518	7,545	7,570	7,593	7,623	7,629	7,627	7,624
Lumber and wood products	780	798	799	800	797	796	798	798	800	800	806	808	808	809	810
Furniture and fixtures	504	509	506	508	508	510	506	508	509	511	513	516	519	521	524
Stone, clay, and glass products	541	542	541	540	538	541	541	541	543	542	543	550	550	547	550
Primary metal industries	711	711	710	708	709	708	711	713	716	716	717	719	720	720	718
Fabricated metal products	1,448	1,472	1,468	1,468	1,470	1,468	1,475	1,477	1,482	1,485	1,489	1,496	1,497	1,494	1,495
Industrial machinery and equipment	2,112	2,155	2,142	2,146	2,152	2,155	2,165	2,168	2,176	2,184	2,188	2,194	2,195	2,194	2,192
Computer and office equipment	363	379	375	378	379	381	385	384	386	384	387	387	387	385	383
Electronic and other electrical equipment	1,651	1,656	1,643	1,644	1,651	1,658	1,661	1,663	1,666	1,673	1,678	1,685	1,686	1,686	1,683
Electronic components and accessories	610	629	618	622	628	632	637	639	644	647	651	655	654	654	650
Transportation equipment	1,781	1,830	1,804	1,809	1,824	1,826	1,855	1,840	1,849	1,868	1,868	1,874	1,880	1,878	1,880
Motor vehicles and equipment	963	972	957	960	967	965	985	973	977	995	988	992	993	991	993
Aircraft and parts	460	505	495	498	505	510	514	515	518	521	526	527	530	528	529
Instruments and related products	854	857	855	854	856	859	858	858	859	860	861	864	860	862	861
Miscellaneous manufacturing industries	387	386	388	387	386	389	387	386	385	381	385	387	386	386	387
Nondurable goods	7,691	7,622	7,639	7,634	7,627	7,604	7,598	7,601	7,605	7,614	7,626	7,629	7,622	7,619	7,606
Production workers	5,379	5,320	5,334	5,336	5,325	5,310	5,290	5,300	5,306	5,312	5,320	5,321	5,317	5,310	5,298
Food and kindred products	1,693	1,693	1,699	1,693	1,692	1,684	1,679	1,688	1,690	1,701	1,706	1,710	1,710	1,711	1,712
Tobacco products	41	41	41	41	41	41	40	40	41	42	41	40	41	42	42
Textile mill products	624	608	609	609	607	608	604	605	604	602	604	601	598	595	595
Apparel and other textile products	864	813	822	818	816	810	810	803	800	796	795	792	783	782	776
Paper and allied products	681	676	677	677	675	675	675	675	675	676	676	678	679	679	676
Printing and publishing	1,538	1,544	1,541	1,546	1,550	1,549	1,547	1,547	1,548	1,551	1,553	1,558	1,558	1,557	1,555
Chemicals and allied products	1,032	1,027	1,029	1,030	1,027	1,023	1,024	1,026	1,028	1,028	1,029	1,027	1,028	1,028	1,027
Petroleum and coal products	142	139	140	139	138	138	138	138	137	137	138	134	135	135	135
Rubber and miscellaneous plastics products	981	990	988	988	989	986	991	990	993	992	996	1,002	1,002	1,004	1,003
Leather and leather products	96	91	93	93	92	90	90	89	89	89	88	87	88	86	85
SERVICE-PRODUCING	95,092	97,520	97,004	97,132	97,342	97,727	97,727	98,021	98,269	98,624	98,871	99,126	99,350	99,421	99,662
Transportation and public utilities	6,261	6,425	6,421	6,431	6,434	6,443	6,289	6,473	6,497	6,495	6,478	6,516	6,544	6,559	6,557
Transportation	4,038	4,182	4,179	4,187	4,193	4,202	4,049	4,232	4,247	4,243	4,221	4,247	4,270	4,277	4,273
Railroad transportation	231	228	225	226	230	229	225	227	226	229	230	233	232	231	230
Local and interurban passenger transit	439	458	460	458	457	461	464	457	458	459	462	463	466	468	461
Trucking and warehousing	1,641	1,688	1,676	1,687	1,686	1,692	1,703	1,708	1,710	1,702	1,699	1,713	1,721	1,723	1,737
Water transportation	173	177	177	176	178	176	179	176	178	177	175	172	177	179	177
Transportation by air	1,122	1,183	1,192	1,192	1,192	1,193	1,025	1,211	1,221	1,222	1,201	1,210	1,216	1,218	1,211
Pipelines, except natural gas	15	14	14	14	14	14	14	14	14	14	14	14	14	14	14
Transportation services	417	436	435	434	436	437	439	439	440	440	440	442	444	444	443
Communications and public utilities	2,223	2,243	2,242	2,244	2,241	2,241	2,240	2,241	2,250	2,252	2,257	2,269	2,274	2,282	2,284
Communications	1,338	1,374	1,369	1,372	1,372	1,372	1,376	1,376	1,385	1,390	1,396	1,406	1,411	1,418	1,425
Electric, gas, and sanitary services	885	869	873	872	869	869	864	865	865	862	861	863	863	864	859
Wholesale trade	6,483	6,657	6,622	6,630	6,634	6,664	6,675	6,687	6,712	6,729	6,746	6,780	6,791	6,805	6,816
Retail trade	21,625	22,136	22,029	22,026	22,079	22,159	22,189	22,215	22,258	22,403	22,450	22,462	22,479	22,453	22,497
Building materials and garden supplies	892	927	931	932	928	930	929	926	926	934	934	945	948	952	949
General merchandise stores	2,726	2,807	2,799	2,787	2,798	2,803	2,822	2,818	2,824	2,868	2,874	2,866	2,862	2,876	2,884
Department stores	2,388	2,462	2,446	2,452	2,450	2,458	2,470	2,469	2,474	2,522	2,520	2,531	2,506	2,521	2,532

See footnotes at end of table.

12. Continued—Employment of workers on nonfarm payrolls by industry, monthly data seasonally adjusted

[In thousands]

Industry	Annual average		1997									1998			
	1996	1997	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.[P]	Apr.[P]
Food stores	3,435	3,497	3,480	3,482	3,487	3,502	3,505	3,507	3,520	3,521	3,522	3,533	3,539	3,541	3,540
Automotive dealers and service stations	2,270	2,323	2,319	2,316	2,315	2,318	2,325	2,331	2,336	2,338	2,338	2,339	2,339	2,341	2,347
New and used car dealers	1,032	1,056	1,055	1,054	1,056	1,055	1,057	1,057	1,060	1,062	1,061	1,061	1,062	1,062	1,064
Apparel and accessory stores	1,101	1,103	1,105	1,099	1,097	1,096	1,102	1,102	1,108	1,111	1,106	1,111	1,102	1,095	1,094
Furniture and home furnishings stores	985	1,041	1,026	1,032	1,034	1,042	1,044	1,049	1,055	1,062	1,070	1,073	1,076	1,081	1,080
Eating and drinking places	7,499	7,605	7,571	7,572	7,595	7,639	7,618	7,626	7,626	7,669	7,688	7,694	7,711	7,663	7,696
Miscellaneous retail establishments	2,717	2,836	2,798	2,806	2,825	2,829	2,844	2,856	2,863	2,900	2,918	2,901	2,902	2,904	2,907
Finance, insurance, and real estate	6,899	7,053	7,019	7,029	7,034	7,058	7,068	7,082	7,108	7,132	7,151	7,170	7,190	7,218	7,248
Finance	3,301	3,405	3,381	3,389	3,394	3,405	3,414	3,427	3,444	3,457	3,472	3,479	3,490	3,508	3,520
Depository institutions	2,024	2,046	2,041	2,043	2,044	2,048	2,048	2,048	2,052	2,058	2,064	2,061	2,063	2,066	2,069
Commercial banks	1,466	1,489	1,486	1,488	1,487	1,490	1,491	1,491	1,495	1,500	1,502	1,500	1,501	1,502	1,503
Savings institutions	263	253	253	253	254	253	252	251	250	250	253	252	252	252	253
Nondepository institutions	516	546	539	542	543	545	549	554	559	558	561	563	568	578	583
Security and commodity brokers	551	591	583	586	586	592	595	600	605	610	614	619	623	628	631
Holding and other investment offices	210	222	218	218	221	220	222	225	228	231	233	236	236	236	237
Insurance	2,217	2,230	2,221	2,222	2,226	2,230	2,232	2,232	2,239	2,247	2,257	2,257	2,262	2,266	2,272
Insurance carriers	1,510	1,510	1,502	1,503	1,506	1,509	1,510	1,511	1,516	1,521	1,529	1,527	1,530	1,535	1,541
Insurance agents, brokers, and service	707	720	719	719	720	721	722	721	723	726	728	730	732	731	731
Real estate	1,381	1,418	1,417	1,418	1,414	1,423	1,422	1,423	1,425	1,428	1,422	1,434	1,438	1,444	1,456
Services[1]	34,377	35,595	35,334	35,451	35,522	35,684	35,702	35,850	35,945	36,102	36,276	36,417	36,534	36,572	36,711
Agricultural services	625	669	664	669	668	673	675	680	684	687	682	687	684	680	690
Hotels and other lodging places	1,716	1,752	1,756	1,752	1,744	1,747	1,747	1,756	1,765	1,763	1,759	1,772	1,765	1,767	1,768
Personal services	1,184	1,190	1,193	1,189	1,182	1,182	1,185	1,187	1,188	1,197	1,185	1,187	1,192	1,193	1,195
Business services	7,254	7,666	7,594	7,618	7,645	7,682	7,657	7,732	7,759	7,832	7,918	7,970	8,029	8,031	8,091
Services to buildings	897	900	902	903	903	901	894	902	902	903	908	912	914	920	924
Personnel supply services	2,646	2,766	2,752	2,744	2,748	2,767	2,732	2,762	2,770	2,819	2,868	2,872	2,923	2,900	2,931
Help supply services	2,341	2,431	2,419	2,409	2,407	2,425	2,395	2,423	2,427	2,484	2,520	2,515	2,572	2,551	2,581
Computer and data processing services	1,208	1,342	1,306	1,322	1,337	1,347	1,360	1,375	1,387	1,401	1,421	1,435	1,451	1,469	1,489
Auto repair services and parking	1,084	1,137	1,132	1,136	1,131	1,137	1,139	1,145	1,148	1,153	1,157	1,163	1,159	1,159	1,162
Miscellaneous repair services	375	385	382	384	386	387	388	388	388	389	390	392	393	392	393
Motion pictures	522	542	528	532	537	539	550	549	550	551	561	559	569	562	561
Amusement and recreation services	1,466	1,548	1,503	1,542	1,561	1,576	1,563	1,568	1,563	1,583	1,600	1,606	1,615	1,618	1,625
Health services	9,469	9,687	9,644	9,673	9,673	9,697	9,712	9,731	9,750	9,771	9,795	9,801	9,815	9,822	9,836
Offices and clinics of medical doctors	1,679	1,743	1,728	1,740	1,740	1,745	1,745	1,754	1,763	1,773	1,780	1,786	1,789	1,795	1,800
Nursing and personal care facilities	1,732	1,761	1,760	1,764	1,761	1,762	1,765	1,764	1,766	1,767	1,769	1,766	1,769	1,767	1,765
Hospitals	3,814	3,876	3,857	3,864	3,869	3,877	3,884	3,892	3,900	3,910	3,917	3,927	3,930	3,934	3,948
Home health care services	665	682	684	682	682	685	685	684	682	683	681	673	670	665	659
Legal services	930	956	951	952	953	957	957	962	963	968	975	975	979	982	983
Educational services	2,020	2,081	2,062	2,062	2,074	2,089	2,094	2,105	2,110	2,118	2,121	2,132	2,141	2,149	2,157
Social services	2,403	2,478	2,458	2,466	2,474	2,494	2,497	2,502	2,507	2,511	2,521	2,529	2,535	2,545	2,556
Child day care services	569	589	581	587	590	594	600	597	594	594	598	605	604	607	609
Residential care	672	700	694	695	698	702	703	707	709	711	716	717	720	724	728
Museums and botanical and zoological gardens	85	88	87	88	88	88	88	88	88	89	89	88	90	90	91
Membership organizations	2,185	2,200	2,199	2,201	2,202	2,209	2,206	2,202	2,204	2,199	2,209	2,214	2,216	2,218	2,220
Engineering and management services	2,846	3,001	2,965	2,971	2,988	3,010	3,027	3,038	3,061	3,074	3,096	3,125	3,134	3,147	3,166
Engineering and architectural services	839	878	869	869	877	878	881	886	891	893	901	907	909	912	918
Management and public relations	873	952	936	941	950	959	968	969	976	979	993	1,009	1,013	1,012	1,015
Government	19,447	19,654	19,579	19,585	19,639	19,719	19,804	19,714	19,749	19,763	19,770	19,781	19,812	19,814	19,833
Federal	2,757	2,700	2,708	2,703	2,694	2,689	2,690	2,680	2,687	2,694	2,689	2,674	2,676	2,671	2,672
Federal, except Postal Service	1,901	1,842	1,856	1,851	1,843	1,839	1,830	1,824	1,832	1,826	1,818	1,825	1,820	1,816	1,813
State	4,624	4,648	4,635	4,636	4,640	4,671	4,664	4,662	4,663	4,673	4,665	4,664	4,663	4,674	4,676
Education	1,924	1,951	1,938	1,943	1,950	1,972	1,961	1,962	1,962	1,967	1,964	1,960	1,960	1,968	1,970
Other State government	2,700	2,697	2,697	2,693	2,690	2,699	2,703	2,700	2,701	2,706	2,701	2,704	2,703	2,706	2,706
Local	12,066	12,307	12,236	12,226	12,305	12,359	12,450	12,372	12,399	12,396	12,416	12,443	12,473	12,469	12,485
Education	6,748	6,912	6,858	6,850	6,902	6,954	7,030	6,957	6,963	6,964	6,965	6,985	7,006	7,003	7,009
Other local government	5,318	5,395	5,378	5,376	5,403	5,405	5,420	5,415	5,436	5,432	5,451	5,458	5,467	5,466	5,476

[1] Includes other industries not shown separately.

[P] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

13. Average weekly hours of production or nonsupervisory workers on private nonfarm payrolls, by industry, monthly data seasonally adjusted

Industry	Annual average		1997									1998			
	1996	1997	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.[P]	Apr.[P]
PRIVATE SECTOR	34.4	34.6	34.5	34.5	34.6	34.4	34.6	34.5	34.5	34.8	34.6	34.8	34.9	34.7	34.4
GOODS-PRODUCING	41.1	41.3	41.4	41.4	41.1	41.2	41.1	41.2	41.3	41.2	41.4	41.6	41.4	40.9	40.1
MINING	45.3	45.4	45.3	46.0	45.4	45.4	45.5	45.1	45.2	45.6	45.0	45.5	44.0	43.4	43.5
MANUFACTURING	41.6	42.0	42.1	42.0	41.8	41.8	41.8	41.9	42.0	42.1	42.2	42.1	42.0	41.8	40.7
Overtime hours	4.4	4.8	4.9	4.8	4.6	4.7	4.7	4.7	4.8	4.9	4.9	4.9	4.8	4.7	3.9
Durable goods	42.4	42.8	43.0	42.8	42.6	42.6	42.7	42.6	42.8	42.9	43.0	42.8	42.7	42.4	41.1
Overtime hours	4.7	5.1	5.3	5.2	5.0	5.0	5.0	5.0	5.1	5.2	5.2	5.2	5.1	5.0	3.9
Lumber and wood products	40.8	41.0	41.2	41.0	41.0	41.1	40.8	40.9	41.1	41.2	41.0	41.3	41.2	41.1	40.8
Furniture and fixtures	39.4	40.2	40.1	40.4	39.9	40.0	40.0	40.2	40.0	40.5	40.7	41.2	41.5	40.7	40.0
Stone, clay, and glass products	43.3	43.2	43.0	43.4	42.9	43.1	43.0	43.1	43.1	42.9	43.9	43.9	43.8	43.0	42.8
Primary metal industries	44.2	44.9	45.1	44.8	44.7	44.4	45.0	44.9	45.1	45.3	45.3	45.4	44.7	44.5	43.1
Blast furnaces and basic steel products	44.5	44.9	45.2	44.7	44.5	44.3	45.2	45.1	45.3	45.3	45.5	46.2	45.3	45.3	44.1
Fabricated metal products	42.4	42.7	42.9	42.6	42.4	42.4	42.3	42.4	42.6	42.6	42.9	42.7	42.6	42.3	40.6
Industrial machinery and equipment	43.1	43.6	43.9	43.6	43.3	43.4	43.4	43.4	43.4	43.8	43.6	43.5	43.3	43.2	41.6
Electronic and other electrical equipment	41.5	42.0	42.3	42.0	42.0	42.0	41.7	41.7	41.8	42.0	42.0	41.9	41.8	41.3	40.2
Transportation equipment	44.0	44.5	44.8	44.5	44.2	43.7	44.3	43.9	44.4	44.0	44.7	43.8	43.7	43.6	41.4
Motor vehicles and equipment	44.9	45.0	45.3	45.2	44.8	44.0	44.7	44.1	45.0	44.3	45.0	43.8	43.7	43.6	41.4
Instruments and related products	41.7	42.0	41.9	41.9	41.8	41.7	42.3	42.0	41.9	42.2	41.8	41.7	42.1	41.5	41.0
Miscellaneous manufacturing	39.7	40.4	40.5	40.3	40.1	40.4	40.2	40.3	40.2	40.5	40.7	40.2	40.7	40.2	39.0
Nondurable goods	40.5	40.9	40.9	40.8	40.6	40.6	40.7	40.9	40.8	41.1	41.1	41.2	40.9	40.8	40.1
Overtime hours	4.0	4.4	4.4	4.3	4.1	4.3	4.2	4.3	4.4	4.5	4.5	4.4	4.3	4.4	3.9
Food and kindred products	41.0	41.3	41.1	41.4	40.9	41.1	41.0	41.2	41.2	41.6	41.7	41.9	41.4	41.4	41.0
Textile mill products	40.6	41.4	41.7	41.4	41.2	41.3	41.2	41.4	41.3	41.5	41.7	41.8	41.7	41.2	39.8
Apparel and other textile products	37.0	37.4	37.5	37.1	37.4	36.9	37.1	37.3	37.2	37.1	37.5	37.6	37.4	37.1	36.4
Paper and allied products	43.3	43.7	43.9	43.8	43.4	43.5	43.4	43.7	43.7	44.1	43.8	43.6	43.4	43.4	42.3
Printing and publishing	38.2	38.5	38.5	38.3	38.3	38.4	38.3	38.7	38.7	38.8	38.6	38.5	38.5	38.3	37.9
Chemicals and allied products	43.2	43.2	43.1	43.3	43.1	43.0	43.3	43.4	43.2	43.4	43.1	43.5	43.5	43.4	43.1
Rubber and miscellaneous plastics products	41.5	41.8	42.0	41.6	41.5	41.7	41.7	41.6	41.8	42.2	42.1	42.0	41.8	41.5	40.5
Leather and leather products	38.1	38.4	38.5	38.2	38.1	38.4	38.0	38.4	38.6	38.0	38.3	38.3	38.8	37.8	36.3
SERVICE-PRODUCING	32.7	32.8	32.7	32.7	32.9	32.7	32.9	32.8	32.8	33.1	32.8	32.9	33.1	33.0	33.0
TRANSPORTATION AND PUBLIC UTILITIES	39.6	39.7	39.3	39.5	39.6	39.0	40.1	39.9	39.8	40.2	39.7	39.8	40.0	39.5	39.6
WHOLESALE TRADE	38.3	38.4	38.4	38.4	38.5	38.3	38.4	38.3	38.3	38.7	38.2	38.4	38.6	38.5	38.4
RETAIL TRADE	28.8	28.9	28.9	28.9	28.9	28.8	29.1	28.8	28.9	28.9	28.9	29.0	29.1	29.0	29.1

[P] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

14. Average hourly earnings of production or nonsupervisory workers on private nonfarm payrolls, by industry, seasonally adjusted

Industry	Annual average		1997									1998			
	1996	1997	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.[P]	Apr.[P]
PRIVATE SECTOR (in current dollars)	$ 11.81	$ 12.26	$12.14	$12.19	$12.23	$12.24	$12.31	$12.35	$12.40	$12.48	$ 12.48	$12.52	$12.59	$12.63	$12.67
Goods-producing	13.47	13.91	13.80	13.85	13.86	13.86	13.94	13.97	14.07	14.11	14.17	14.15	14.21	14.25	14.28
Mining	15.61	16.14	15.96	16.05	16.12	16.10	16.07	16.20	16.27	16.43	16.41	16.42	16.73	17.03	17.04
Construction	15.46	16.00	15.86	15.91	15.95	15.96	16.03	16.08	16.12	16.22	16.36	16.22	16.29	16.41	16.46
Manufacturing	12.78	13.17	13.07	13.11	13.12	13.11	13.20	13.22	13.35	13.37	13.39	13.38	13.43	13.47	13.47
Excluding overtime	12.12	12.46	12.38	12.38	12.42	12.41	12.50	12.51	12.60	12.63	12.64	12.64	12.70	12.75	12.84
Service-producing	11.25	11.71	11.58	11.63	11.69	11.70	11.77	11.81	11.85	11.94	11.92	11.97	12.06	12.10	12.16
Transportation and public utilities	14.44	14.89	14.76	14.80	14.85	14.95	15.01	14.95	15.01	15.05	15.09	15.26	15.23	15.19	15.28
Wholesale trade	12.87	13.43	13.27	13.33	13.42	13.38	13.54	13.54	13.57	13.73	13.69	13.67	13.80	13.87	13.90
Retail trade	7.99	8.34	8.26	8.28	8.30	8.32	8.36	8.42	8.46	8.50	8.51	8.57	8.59	8.63	8.69
Finance, insurance, and real estate	12.79	13.31	13.00	13.18	13.29	13.30	13.49	13.47	13.54	13.64	13.59	13.63	13.84	13.89	13.95
Services	11.79	12.28	12.16	12.20	12.26	12.26	12.33	12.36	12.41	12.50	12.48	12.52	12.62	12.68	12.75
PRIVATE SECTOR (in constant (1982) dollars)	7.43	7.54	7.49	7.52	7.54	7.53	7.56	7.56	7.58	7.62	7.62	7.64	7.69	7.72	–

– Data not available.

[P] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

15. Average hourly earnings of production or nonsupervisory workers on private nonfarm payrolls, by industry

Industry	Annual average		1997									1998			
	1996	1997	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.[p]	Apr.[p]
PRIVATE SECTOR	$ 11.81	$ 12.26	$12.17	$12.17	$12.17	$12.15	$12.21	$12.39	$12.43	$12.51	$12.51	$12.59	$12.63	$12.66	$12.68
MINING	15.61	16.14	16.05	15.98	16.11	16.03	15.94	16.23	16.19	16.38	16.49	16.61	16.85	17.06	17.10
CONSTRUCTION	15.46	16.00	15.75	15.83	15.88	16.00	16.09	16.27	16.30	16.25	16.34	16.22	16.18	16.27	16.34
MANUFACTURING	12.78	13.17	13.09	13.09	13.10	13.11	13.15	13.24	13.29	13.37	13.48	13.41	13.42	13.48	13.51
Durable goods	13.34	13.74	13.64	13.64	13.66	13.62	13.71	13.81	13.89	13.97	14.08	13.97	13.98	14.04	14.03
Lumber and wood products	10.44	10.76	10.64	10.71	10.77	10.82	10.80	10.86	10.86	10.90	10.93	10.89	10.90	10.96	10.99
Furniture and fixtures	10.15	10.55	10.42	10.47	10.51	10.53	10.59	10.70	10.67	10.70	10.79	10.75	10.77	10.80	10.82
Stone, clay, and glass products	12.82	13.18	13.06	13.12	13.13	13.20	13.21	13.27	13.32	13.36	13.40	13.39	13.45	13.48	13.67
Primary metal industries	14.97	15.22	15.15	15.09	15.16	15.28	15.17	15.27	15.34	15.39	15.43	15.47	15.46	15.51	15.72
Blast furnaces and basic steel products	17.79	17.99	17.88	17.84	17.99	18.09	17.97	18.26	18.22	18.25	18.12	18.30	18.31	18.26	18.78
Fabricated metal products	12.52	12.83	12.80	12.78	12.77	12.69	12.79	12.85	12.90	12.97	13.08	13.02	13.02	13.05	12.94
Industrial machinery and equipment	13.59	14.06	13.94	13.92	13.95	14.01	14.02	14.18	14.22	14.29	14.40	14.33	14.36	14.35	14.33
Electronic and other electrical equipment	12.18	12.70	12.55	12.56	12.59	12.69	12.75	12.85	12.91	13.00	13.13	13.00	12.97	13.07	13.17
Transportation equipment	17.20	17.60	17.48	17.47	17.45	17.23	17.47	17.60	17.92	17.98	18.13	17.79	17.81	17.96	17.91
Motor vehicles and equipment	17.75	18.09	18.01	17.97	17.92	17.54	17.86	18.05	18.50	18.57	18.69	18.28	18.35	18.55	18.58
Instruments and related products	13.14	13.55	13.47	13.52	13.55	13.54	13.52	13.66	13.63	13.70	13.73	13.68	13.72	13.78	13.78
Miscellaneous manufacturing	10.38	10.60	10.53	10.52	10.50	10.52	10.57	10.65	10.65	10.72	10.81	10.81	10.80	10.79	10.74
Nondurable goods	11.97	12.34	12.27	12.27	12.27	12.37	12.33	12.40	12.40	12.48	12.58	12.57	12.58	12.64	12.73
Food and kindred products	11.20	11.49	11.45	11.48	11.45	11.52	11.51	11.51	11.45	11.60	11.72	11.67	11.64	11.71	11.78
Tobacco products	19.34	19.20	20.32	20.76	21.10	20.95	19.78	18.19	17.95	17.78	18.59	18.32	18.10	18.42	18.48
Textile mill products	9.69	10.02	9.94	9.94	9.97	10.01	10.01	10.09	10.10	10.15	10.24	10.25	10.25	10.28	10.38
Apparel and other textile products	7.96	8.25	8.21	8.23	8.25	8.20	8.23	8.33	8.32	8.33	8.42	8.41	8.38	8.42	8.50
Paper and allied products	14.67	15.06	15.00	14.98	14.99	15.18	15.13	15.19	15.19	15.24	15.29	15.20	15.23	15.32	15.50
Printing and publishing	12.65	13.06	12.99	12.93	12.90	13.01	13.07	13.22	13.20	13.25	13.30	13.27	13.33	13.37	13.35
Chemicals and allied products	16.17	16.58	16.42	16.47	16.54	16.59	16.57	16.63	16.65	16.85	16.91	16.89	16.94	16.97	17.17
Petroleum and coal products	19.32	20.20	19.97	19.98	19.94	20.02	19.99	20.25	20.29	20.40	20.56	20.65	20.92	21.15	20.88
Rubber and miscellaneous plastics products	11.24	11.57	11.53	11.50	11.53	11.57	11.57	11.65	11.64	11.65	11.77	11.74	11.78	11.79	11.86
Leather and leather products	8.56	8.95	8.87	8.89	8.91	8.75	8.87	9.07	9.13	9.10	9.18	9.29	9.25	9.31	9.25
TRANSPORTATION AND PUBLIC UTILITIES	14.44	14.89	14.77	14.72	14.78	14.95	15.00	15.01	15.04	15.14	15.12	15.22	15.23	15.16	15.24
WHOLESALE TRADE	12.87	13.43	13.33	13.32	13.36	13.37	13.47	13.52	13.56	13.74	13.71	13.76	13.84	13.85	13.91
RETAIL TRADE	7.99	8.34	8.28	8.27	8.27	8.27	8.29	8.45	8.47	8.51	8.51	8.63	8.62	8.66	8.69
FINANCE, INSURANCE, AND REAL ESTATE	12.79	13.31	13.09	13.18	13.23	13.18	13.35	13.45	13.53	13.69	13.61	13.67	13.92	13.96	13.95
SERVICES	11.79	12.28	12.20	12.17	12.15	12.07	12.12	12.36	12.42	12.58	12.61	12.67	12.75	12.77	12.74

[p] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

16. Average weekly earnings of production or nonsupervisory workers on private nonfarm payrolls, by industry

Industry	Annual average		1997									1998			
	1996	1997	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.[p]	Apr.[p]
PRIVATE SECTOR															
Current dollars	$406.26	$424.20	$418.65	$419.87	$424.73	$421.61	$427.35	$429.93	$430.08	$435.35	$434.10	$430.58	$437.00	$436.77	$434.92
Seasonally adjusted	–	–	418.83	420.56	423.16	421.06	425.93	426.08	427.80	434.30	431.81	435.70	439.39	438.26	435.85
Constant (1982) dollars	255.51	260.89	258.11	258.86	261.53	259.45	262.50	263.12	262.89	266.11	265.83	263.35	267.11	266.65	–
MINING	707.13	732.76	723.86	731.88	737.84	724.56	726.86	740.09	735.03	748.57	747.00	747.45	739.72	738.70	742.14
CONSTRUCTION	602.94	622.40	609.53	628.45	627.26	641.60	638.77	650.80	647.11	614.25	627.46	606.63	613.22	615.01	619.29
MANUFACTURING															
Current dollars	531.65	553.14	547.16	548.47	550.20	540.13	552.30	561.38	560.84	569.56	579.64	561.88	559.61	562.12	551.21
Constant (1982) dollars	334.37	340.18	337.34	338.14	338.79	332.39	339.25	343.56	342.81	348.14	354.95	343.66	342.06	343.17	–
Durable goods	565.62	588.07	582.43	583.79	584.65	570.68	585.42	595.21	597.27	604.90	618.11	595.12	594.15	596.70	580.84
Lumber and wood products	425.95	441.16	438.37	442.32	446.96	441.46	446.04	450.69	450.69	451.26	450.32	437.78	441.45	447.17	449.49
Furniture and fixtures	399.91	424.11	411.59	416.71	419.35	415.94	428.90	439.77	434.27	440.84	454.26	436.45	436.19	436.32	430.64
Stone, clay, and glass products	555.11	569.38	560.27	573.34	572.47	571.56	578.60	586.53	584.75	575.82	585.58	565.06	572.97	571.55	585.08
Primary metal industries	661.67	683.38	677.21	674.52	679.17	670.79	678.10	691.73	691.83	700.25	711.32	702.34	691.06	691.75	682.25
Blast furnaces and basic steel products	791.66	807.75	802.81	797.45	802.35	801.39	805.06	825.35	819.90	830.38	833.52	843.63	827.61	825.35	830.08
Fabricated metal products	530.85	547.84	542.72	543.15	544.00	527.90	543.58	552.55	553.41	561.60	575.52	554.65	550.75	550.71	529.25
Industrial machinery and equipment	585.73	613.02	607.78	605.52	605.43	599.63	604.26	619.67	615.73	628.76	645.12	624.79	624.66	624.23	601.86
Electronic and other electrical equipment	505.47	533.40	524.59	523.75	528.78	522.83	531.68	540.99	540.93	553.80	565.90	543.40	539.55	541.10	530.75
Transportation equipment	756.80	783.20	781.36	780.91	778.27	730.55	773.92	781.44	799.23	800.11	828.54	779.20	774.74	786.65	754.01
Motor vehicles and equipment	769.98	814.05	817.65	817.64	811.78	740.19	798.34	806.84	834.35	831.94	865.35	800.66	798.23	814.35	785.93
Instruments and related products	547.94	569.10	561.70	563.78	567.75	557.85	569.19	575.09	571.10	583.62	589.02	571.82	577.61	574.63	563.60
Miscellaneous manufacturing	412.09	428.24	423.31	420.80	421.05	415.54	425.97	434.52	464.52	441.66	446.45	431.32	434.16	434.84	422.08
Nondurable goods	484.79	504.71	496.94	498.16	499.39	499.75	504.30	513.36	509.64	517.92	525.84	514.11	510.75	513.18	509.20
Food and kindred products	459.20	474.54	462.58	471.83	467.16	473.47	479.97	486.87	478.61	489.52	496.93	483.14	476.08	478.94	475.91
Tobacco products	773.60	746.88	780.29	803.41	827.12	739.54	747.68	716.69	712.62	702.31	745.46	692.50	676.94	683.38	687.46
Textile mill products	393.41	414.83	410.52	409.53	415.75	406.41	416.42	423.78	418.14	425.29	431.10	426.40	421.28	423.54	415.20
Apparel and other textile products	294.52	308.55	305.41	306.16	311.85	300.12	307.80	313.21	312.83	131.21	320.80	313.69	310.90	313.22	309.40
Paper and allied products	635.21	658.12	651.00	650.13	650.57	657.29	656.64	669.88	665.32	676.66	681.93	664.24	654.89	660.29	655.65
Printing and publishing	483.23	502.81	497.52	492.63	490.20	495.68	504.50	518.22	513.48	519.40	521.36	504.26	509.21	513.41	505.97
Chemicals and allied products	698.54	716.26	706.06	709.86	712.87	708.39	712.51	723.41	720.95	736.35	744.04	733.03	733.50	736.50	736.59
Petroleum and coal products	842.35	870.62	846.73	847.15	855.43	854.85	859.57	876.83	878.56	885.36	869.69	918.93	882.82	913.68	887.40
Rubber and miscellaneous plastics products	466.46	483.63	480.80	479.55	480.80	474.37	482.47	489.30	487.72	495.13	506.11	493.08	490.05	489.29	485.07
Leather and leather products	326.14	343.68	337.95	339.60	345.71	330.75	340.61	353.73	352.42	350.35	356.18	350.23	350.58	350.99	333.93
TRANSPORTATION AND PUBLIC UTILITIES	571.82	591.13	578.98	578.50	588.24	589.03	607.50	603.40	598.59	610.14	601.78	596.62	606.15	595.79	598.93
WHOLESALE TRADE	492.92	515.71	510.54	512.82	517.03	512.07	518.60	519.17	520.70	531.74	526.46	524.26	532.84	531.84	532.75
RETAIL TRADE	230.11	241.03	236.81	238.18	243.14	244.50	246.21	245.05	243.94	245.09	248.49	242.50	247.39	248.54	250.27
FINANCE, INSURANCE, AND REAL ESTATE	459.16	480.49	469.93	473.16	484.22	471.84	481.94	481.51	485.73	502.42	488.60	493.49	516.43	515.12	509.18
SERVICES	382.00	400.33	395.28	394.31	398.52	395.90	398.75	401.70	404.89	412.62	411.09	410.51	418.20	417.58	415.32

– Data not available.

[p] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

17. Diffusion indexes of employment change, seasonally adjusted

[In percent]

Timespan and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov	Dec.
	Private nonfarm payrolls, 356 industries											
Over 1-month span:												
1995	62.4	60.1	54.5	55.6	48.0	53.9	54.1	59.8	57.0	54.9	57.2	57.9
1996	51.7	64.3	60.1	54.9	62.9	60.5	56.5	59.3	54.4	62.6	58.1	61.0
1997	59.3	59.1	59.0	61.1	57.4	50.7	58.8	58.7	56.5	64.2	61.7	61.4
1998	64.5	58.3	55.2	54.1	–	–	–	–	–	–	–	–
Over 3-month span:												
1995	65.4	62.5	58.7	53.2	54.6	52.4	57.9	59.6	59.7	59.0	57.0	56.3
1996	62.6	63.6	62.6	61.2	62.1	63.1	62.6	58.8	62.8	60.4	64.7	65.0
1997	64.6	62.2	64.2	65.6	59.7	58.7	59.1	65.0	65.3	67.3	68.4	69.9
1998	66.4	64.5	56.7	–	–	–	–	–	–	–	–	–
Over 6-month span:												
1995	66.9	61.4	58.1	56.6	58.1	58.1	56.7	59.8	60.3	59.1	61.5	63.3
1996	62.2	63.5	63.5	63.5	62.6	61.2	65.3	63.6	62.6	64.5	64.2	67.4
1997	67.6	66.6	64.5	64.6	64.3	66.7	67.0	68.3	70.2	72.9	73.0	71.3
1998	69.5	–	–	–	–	–	–	–	–	–	–	–
Over 12-month span:												
1995	63.6	62.4	62.6	63.3	61.7	61.9	58.7	62.2	62.2	61.1	62.2	63.3
1996	63.5	64.7	62.4	62.9	64.7	64.2	65.0	63.1	63.8	66.7	65.7	65.0
1997	67.3	66.2	69.4	70.4	70.1	69.5	71.3	71.6	72.2	71.3	–	–
	Manufacturing payrolls, 139 industries											
Over 1-month span:												
1995	54.3	56.1	44.2	51.4	42.1	42.8	43.5	52.2	47.1	50.0	47.5	50.7
1996	45.7	54.3	47.8	39.2	52.2	52.2	44.2	52.9	44.2	50.7	49.6	52.2
1997	54.0	50.4	52.9	52.9	51.4	49.3	51.8	49.6	54.3	57.6	59.4	57.2
1998	60.8	50.0	47.5	47.1	–	–	–	–	–	–	–	–
Over 3-month span:												
1995	59.7	50.4	47.5	40.3	42.4	36.3	38.5	43.9	49.3	46.4	45.3	43.9
1996	47.5	47.8	42.1	38.5	43.2	45.0	48.9	43.2	50.4	46.4	52.5	52.5
1997	53.2	51.4	50.7	52.5	48.6	48.9	48.6	53.6	55.8	62.9	64.0	67.3
1998	60.4	56.5	45.0	–	–	–	–	–	–	–	–	–
Over 6-month span:												
1995	55.8	48.6	43.9	38.8	39.2	39.6	38.8	39.6	43.9	45.0	44.2	44.6
1996	41.4	41.7	41.0	38.1	39.6	40.6	47.5	46.8	45.3	50.4	48.2	53.2
1997	53.2	53.2	50.4	49.3	48.6	52.2	55.0	58.3	60.8	65.1	68.0	63.7
1998	60.8	–	–	–	–	–	–	–	–	–	–	–
Over 12-month span:												
1995	46.0	44.2	46.0	47.8	41.0	41.7	38.5	38.8	36.3	37.4	38.1	39.9
1996	39.6	42.8	39.2	39.6	42.4	40.3	43.5	40.3	43.5	46.8	46.4	47.1
1997	51.4	47.8	52.2	55.0	57.6	55.8	57.2	58.3	60.4	60.1	–	–

– Data not available.

NOTE: Figures are the percent of industries with employment increasing plus one-half of the industries with unchanged employment, where 50 percent indicates an equal balance between industries with increasing and decreasing employment. Data for the 2 most recent months shown in each span are preliminary. See the "Definitions" in this section. See "Notes on the data" for a description of the most recent benchmark revision.

18. Annual data: Employment status of the population

[Numbers in thousands]

Employment status	1989	1990	1991	1992	1993	1994	1995	1996	1997
Civilian noninstitutional population	186,393	189,164	190,925	192,805	194,838	196,814	198,584	200,591	203,133
Civilian labor force	123,869	125,840	126,346	128,105	129,200	131,056	132,304	133,943	136,297
Labor force participation rate	66.5	66.5	66.2	66.4	66.3	66.6	66.6	66.8	67.1
Employed	117,342	118,793	117,718	118,492	120,259	123,060	124,900	126,708	129,558
Employment-population ratio	63.0	62.8	61.7	61.5	61.7	62.5	62.9	63.2	63.8
Agriculture	3,199	3,223	3,269	3,247	3,115	3,409	3,440	3,443	3,399
Nonagricultural industries	114,142	115,570	114,499	115,245	117,144	119,651	121,460	123,264	126,159
Unemployed	6,528	7,047	8,628	9,613	8,940	7,996	7,404	7,236	6,739
Unemployment rate	5.3	5.6	6.8	7.5	6.9	6.1	5.6	5.4	4.9
Not in the labor force	62,523	63,324	64,578	64,700	65,638	65,758	66,280	66,647	66,837

19. Annual data: Employment levels by industry

[In thousands]

Industry	1989	1990	1991	1992	1993	1994	1995	1996	1997
Total employment	107,895	109,419	108,256	108,604	110,730	114,172	117,191	119,523	122,259
Private sector	90,117	91,115	89,854	89,959	91,889	95,044	97,885	100,076	102,605
Goods-producing	25,254	24,905	23,745	23,231	23,352	23,908	24,265	24,431	24,739
Mining	692	709	689	635	610	601	581	574	574
Construction	5,171	5,120	4,650	4,492	4,668	4,986	5,160	5,400	5,629
Manufacturing	19,391	19,076	18,406	18,104	18,075	18,321	18,524	18,457	18,537
Service-producing	82,642	84,514	84,511	85,373	87,378	90,264	92,925	95,092	97,520
Transportation and public utilities	5,625	5,793	5,762	5,721	5,829	5,993	6,132	6,261	6,425
Wholesale trade	6,187	6,173	6,081	5,997	5,981	6,162	6,378	6,483	6,657
Retail trade	19,475	19,601	19,284	19,356	19,773	20,507	21,187	21,625	22,136
Finance, insurance, and real estate	6,668	6,709	6,646	6,602	6,757	6,896	6,806	6,899	7,053
Services	26,907	27,934	28,336	29,052	30,197	31,579	33,117	34,377	35,595
Government	17,779	18,304	18,402	18,645	18,841	19,128	19,305	19,447	19,654
Federal	2,988	3,085	2,966	2,969	2,915	2,870	2,822	2,757	2,700
State	4,182	4,305	4,355	4,408	4,488	4,576	4,635	4,624	4,648
Local	10,609	10,914	11,081	11,267	11,438	11,682	11,849	12,066	12,307

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

20. Annual data: Average hours and earnings of production or nonsupervisory workers on nonfarm payrolls, by industry

Industry	1989	1990	1991	1992	1993	1994	1995	1996	1997
Private sector:									
Average weekly hours	34.6	34.5	34.3	34.4	34.5	34.7	34.5	34.4	34.6
Average hourly earnings (in dollars)	9.66	10.01	10.32	10.57	10.83	11.12	11.43	11.81	12.26
Average weekly earnings (in dollars)	334.24	345.35	353.98	363.61	373.64	385.86	394.34	406.26	424.20
Mining:									
Average weekly hours	43.0	44.1	44.4	43.9	44.3	44.8	44.7	45.3	45.4
Average hourly earnings (in dollars)	13.26	13.68	14.19	14.54	14.60	14.88	15.30	15.61	16.14
Average weekly earnings (in dollars)	570.18	603.29	630.04	638.31	646.78	666.62	683.91	707.13	732.76
Construction:									
Average weekly hours	37.9	38.2	38.1	38.0	38.5	38.9	38.9	39.0	38.9
Average hourly earnings (in dollars)	13.54	13.77	14.00	14.15	14.38	14.73	15.09	15.46	16.00
Average weekly earnings (in dollars)	513.17	526.01	533.40	537.70	553.63	573.00	587.00	602.94	622.40
Manufacturing:									
Average weekly hours	41.0	40.8	40.7	41.0	41.4	42.0	41.6	41.6	42.0
Average hourly earnings (in dollars)	10.48	10.83	11.18	11.46	11.74	12.07	12.37	12.78	13.17
Average weekly earnings (in dollars)	429.68	441.86	455.03	469.86	486.04	506.94	514.59	531.65	553.14
Transportation and public utilities:									
Average weekly hours	38.9	38.9	38.7	38.9	39.6	39.9	39.4	39.6	39.7
Average hourly earnings (in dollars)	12.60	12.97	13.22	13.45	13.62	13.86	14.13	14.44	14.89
Average weekly earnings (in dollars)	490.14	504.53	511.61	523.21	539.35	553.01	556.72	571.82	591.13
Wholesale trade:									
Average weekly hours	38.0	38.1	38.1	38.2	38.2	38.4	38.3	38.3	38.4
Average hourly earnings (in dollars)	10.39	10.79	11.15	11.39	11.74	12.06	12.43	12.87	13.43
Average weekly earnings (in dollars)	394.82	411.10	424.82	435.10	448.47	463.10	476.07	492.92	515.71
Retail trade:									
Average weekly hours	28.9	28.8	28.6	28.8	28.8	28.9	28.8	28.8	28.9
Average hourly earnings (in dollars)	6.53	6.75	6.94	7.12	7.29	7.49	7.69	7.99	8.34
Average weekly earnings (in dollars)	188.72	194.40	198.48	205.06	209.95	216.46	221.47	230.11	241.03
Finance, insurance, and real estate:									
Average weekly hours	35.8	35.8	35.7	35.8	35.8	35.8	35.9	35.9	36.1
Average hourly earnings (in dollars)	9.53	9.97	10.39	10.82	11.35	11.83	12.32	12.79	13.31
Average weekly earnings (in dollars)	341.17	356.93	370.92	387.36	406.33	423.51	442.29	459.16	480.49
Services:									
Average weekly hours	32.6	32.5	32.4	32.5	32.5	32.5	32.4	32.4	32.6
Average hourly earnings (in dollars)	9.38	9.83	10.23	10.54	10.78	11.04	11.39	11.79	12.28
Average weekly earnings (in dollars)	305.79	319.48	331.45	342.55	350.35	358.80	369.04	382.00	400.33

21. Employment Cost Index, compensation,[1] by occupation and industry group

[June 1989 = 100]

Series	1996				1997				1998	Percent change	
	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	3 months ended	12 months ended
										Mar. 1998	
Civilian workers[2]	128.3	129.2	130.2	130.9	132.0	132.8	134.1	135.2	136.3	0.8	3.3
Workers, by occupational group:											
White-collar workers	129.1	130.0	131.3	131.9	133.1	133.9	135.2	136.5	137.7	.9	3.5
Professional specialty and technical	130.6	131.4	132.6	133.1	133.7	134.6	135.8	136.7	137.5	.6	2.8
Executive, adminitrative, and managerial	128.5	129.1	131.1	131.5	133.2	134.0	135.3	137.3	139.1	1.3	4.4
Administrative support, including clerical	130.1	130.8	132.0	132.6	133.6	134.6	135.8	136.9	138.0	.8	3.3
Blue-collar workers	126.7	127.7	128.3	129.1	129.8	130.9	131.8	132.4	133.2	.6	2.6
Service occupations	128.0	128.7	129.7	131.0	132.0	132.7	134.6	135.6	136.9	1.0	3.7
Workers, by industry division:											
Goods-producing	128.3	129.3	130.1	130.9	131.5	132.7	133.6	134.1	135.1	.7	2.7
Manufacturing	129.3	130.4	131.3	132.1	132.6	133.8	134.6	135.3	136.4	.8	2.9
Service-producing	128.2	129.1	130.2	130.9	132.1	132.9	134.2	135.5	136.8	1.0	3.6
Services	130.4	131.2	132.5	133.2	134.1	134.9	136.5	137.6	138.3	.5	3.1
Health services	132.5	133.4	134.1	134.4	135.2	135.7	136.7	137.9	138.0	.1	2.1
Hospitals	132.3	132.9	133.6	133.8	134.2	134.6	135.6	136.7	137.1	.3	2.2
Educational services	130.5	130.8	133.2	133.9	134.0	134.2	136.5	137.0	137.5	.4	2.6
Public administration[3]	129.2	129.6	130.7	131.8	133.0	133.0	134.1	135.1	136.4	1.0	2.6
Nonmanufacturing	127.9	128.8	129.8	130.5	131.7	132.5	133.8	135.1	136.2	.8	3.4
Private industry workers	127.9	129.0	129.8	130.6	131.7	132.8	133.9	135.1	136.3	.9	3.5
Excluding sales occupations	128.3	129.2	130.2	130.8	131.9	133.0	134.1	135.2	136.4	.9	3.4
Workers, by occupational group:											
White-collar workers	129.0	130.0	131.1	131.7	133.1	134.1	135.2	136.7	138.1	1.0	3.8
Excluding sales occupations	129.9	130.7	132.0	132.5	133.7	134.8	135.9	137.4	138.8	1.0	3.8
Professional specialty and technical occupations	131.6	132.6	133.3	133.7	134.6	135.9	136.7	137.8	138.8	.7	3.1
Executive, adminitrative, and managerial occupations	128.0	128.8	130.9	131.3	133.0	133.9	135.2	137.4	139.4	1.5	4.8
Sales occupations	124.8	126.9	126.7	128.1	130.1	130.7	132.2	133.5	135.3	1.3	4.0
Administrative support occupations, including clerical	130.1	130.8	132.0	132.5	133.7	134.7	135.9	137.0	138.2	.9	3.4
Blue-collar workers	126.6	127.6	128.1	129.0	129.6	130.8	131.7	132.3	133.1	.6	2.7
Precision production, craft, and repair occupations	126.5	127.7	128.2	129.1	129.6	130.9	131.7	131.9	132.9	.8	2.5
Machine operators, assemblers, and inspectors	127.1	128.1	128.7	129.5	130.0	131.2	132.2	133.0	133.6	.5	2.8
Transportation and material moving occupations	123.9	124.7	124.9	125.2	126.1	126.8	128.0	128.9	129.3	.3	2.5
Handlers, equipment cleaners, helpers, and laborers	128.5	129.3	130.0	131.3	132.8	133.4	134.2	135.8	137.0	.9	3.2
Service occupations	125.8	126.5	127.4	128.9	129.8	130.9	133.1	134.1	135.3	.9	4.2
Production and nonsupervisory occupations[4]	127.5	128.6	129.2	130.0	131.1	132.1	133.2	134.2	135.3	.8	3.2
Workers, by industry division:											
Goods-producing	128.2	129.3	130.1	130.9	131.4	132.7	133.6	134.1	135.1	.7	2.8
Excluding sales occupations	128.0	129.0	129.8	130.5	131.1	132.3	133.1	133.6	134.5	.7	2.6
White-collar occupations	130.0	131.0	132.2	132.9	133.5	134.8	135.6	136.2	137.7	1.1	3.1
Excluding sales occupations	129.4	130.2	131.5	132.1	132.6	133.8	134.5	135.0	136.3	1.0	2.8
Blue-collar occupations	127.1	128.3	128.9	129.6	130.2	131.4	132.4	132.8	133.5	.5	2.5
Construction	124.3	125.3	125.9	126.4	127.2	128.7	129.7	129.7	130.6	.7	2.7
Manufacturing	129.3	130.4	131.3	132.1	132.6	133.8	134.6	135.3	136.4	.8	2.9
White-collar occupations	130.5	131.6	132.8	133.6	133.9	135.2	135.8	136.7	138.2	1.1	3.2
Excluding sales occupations	129.5	130.5	131.8	132.5	132.8	133.8	134.5	135.3	136.5	.9	2.8
Blue-collar occupations	128.4	129.5	130.2	131.1	131.7	132.8	133.7	134.3	135.0	.5	2.5
Durables	129.7	131.2	131.9	132.6	133.0	134.1	135.0	135.7	136.5	.6	2.6
Nondurables	128.3	128.9	130.0	131.0	131.7	133.0	133.7	134.5	135.9	1.0	3.2
Service-producing	127.6	128.6	129.5	130.2	131.6	132.5	133.8	135.3	136.7	1.0	3.9
Excluding sales occupations	128.4	129.2	130.3	130.9	132.2	133.3	134.5	136.1	137.4	1.0	3.9
White-collar occupations	128.5	129.6	130.6	131.1	132.7	133.7	134.9	136.6	138.0	1.0	4.0
Excluding sales occupations	130.0	130.9	132.2	132.6	134.0	135.1	136.3	138.1	139.5	1.0	4.1
Blue-collar occupations	125.2	126.0	126.4	127.3	128.2	129.2	130.0	130.9	132.1	.9	3.0
Service occupations	125.3	126.1	127.1	128.6	129.5	130.6	132.7	133.9	135.0	.8	4.2
Transportation and public utilities	127.9	128.4	129.3	130.4	131.3	131.7	132.9	134.2	135.8	1.2	3.4
Transportation	126.9	127.7	128.2	129.2	130.6	130.9	132.1	133.4	134.0	.4	2.6
Public utilities	128.9	129.1	130.4	131.7	132.0	132.5	133.7	135.1	137.9	2.1	4.5
Communications	128.0	127.5	129.1	131.1	130.2	130.5	131.8	134.0	136.6	1.9	4.9
Electric, gas, and sanitary services	130.1	131.1	132.0	132.4	134.2	134.9	136.0	136.4	139.6	2.3	4.0
Wholesale and retail trade	125.5	126.4	127.5	128.6	130.1	131.2	132.4	132.9	134.7	1.4	3.5
Excluding sales occupations	125.9	126.4	128.0	129.0	130.4	131.9	133.0	134.0	135.5	1.1	3.9
Wholesale trade	127.5	129.3	129.9	130.9	132.9	133.8	134.6	135.1	137.7	1.9	3.6
Excluding sales occupations	127.4	128.7	130.0	130.9	132.6	133.7	134.5	135.4	137.0	1.2	3.3
Retail trade	124.5	124.8	126.2	127.4	128.5	129.7	131.1	131.7	133.1	1.1	3.6
Food stores	123.6	124.4	127.0	128.4	128.2	128.2	129.8	129.4	131.3	1.5	2.4
General merchandise stores	122.4	123.6	124.6	126.3	126.4	127.7	128.6	130.0	131.2	.9	3.8

See footnotes at end of table.

21. Continued—Employment Cost Index, compensation,[1] by occupation and industry group

[June 1989 = 100]

Series	1996				1997				1998	Percent change	
	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	3 months ended	12 months ended
										Mar. 1998	
Finance, insurance, and real estate	124.5	126.3	126.7	126.0	128.6	129.4	130.5	134.5	136.7	1.6	6.3
Excluding sales occupations	127.5	128.5	129.7	129.2	131.5	132.4	133.5	137.6	140.2	1.9	6.6
Banking, savings and loan, and other credit agencies	126.9	128.2	130.3	128.0	130.6	131.6	133.1	140.6	143.3	1.9	9.7
Insurance	127.6	128.2	129.3	129.6	131.9	132.1	133.1	134.8	137.4	1.9	4.2
Services	130.7	131.7	132.7	133.4	134.6	135.7	137.0	138.5	139.3	.6	3.5
Business services	128.9	129.2	130.2	131.8	133.3	134.2	136.3	138.6	139.5	.6	4.7
Health services	132.6	133.5	134.2	134.5	135.5	135.9	137.0	138.1	138.2	.1	2.0
Hospitals	132.2	132.8	133.4	133.7	134.0	134.4	135.4	136.5	136.7	.1	2.0
Educational services	134.4	134.8	137.5	138.0	138.5	138.8	141.6	142.6	143.4	.6	3.5
Colleges and universities	135.9	136.2	138.6	139.1	139.5	139.9	142.5	143.7	144.3	.4	3.4
Nonmanufacturing	127.2	128.2	129.1	129.8	131.1	132.1	133.3	134.7	136.0	1.0	3.7
White-collar workers	128.5	129.5	130.5	131.1	132.7	133.6	134.9	136.5	137.9	1.0	3.9
Excluding sales occupations	130.0	130.8	132.1	132.5	134.0	135.1	136.2	137.9	139.3	1.0	4.0
Blue-collar occupations	124.6	125.6	125.9	126.7	127.5	128.6	129.4	130.1	131.0	.7	2.7
Service occupations	125.3	126.0	127.0	128.6	129.4	130.5	132.7	133.8	134.9	.8	4.3
State and local government workers	129.9	130.2	131.9	132.7	133.2	133.3	135.0	135.7	136.5	.6	2.5
Workers, by occupational group:											
White-collar workers	129.6	129.9	131.8	132.5	132.9	133.0	134.8	135.5	136.1	.4	2.4
Professional specialty and technical	129.1	129.5	131.6	132.3	132.5	132.5	134.6	135.1	135.6	.4	2.3
Executive, administrative, and managerial	130.7	131.0	132.0	132.9	134.1	134.4	135.6	136.4	137.5	.8	2.5
Administrative support, including clerical	130.0	130.4	131.8	133.0	133.3	133.5	135.3	136.1	136.9	.6	2.7
Blue-collar workers	129.0	129.5	130.3	131.2	132.1	132.3	133.3	134.2	135.0	.6	2.2
Workers, by industry division:											
Services	130.0	130.3	132.4	133.1	133.2	133.3	135.4	136.0	136.5	.4	2.5
Services excluding schools[5]	130.3	130.8	131.9	132.0	132.5	132.9	134.4	135.3	136.1	.6	2.7
Health services	132.5	133.1	134.0	134.1	134.5	134.9	136.0	137.2	137.9	.5	2.5
Hospitals	132.6	133.2	134.2	134.3	134.8	135.2	136.3	137.6	138.4	.6	2.7
Educational services	129.7	130.0	132.3	133.0	133.1	133.2	135.4	135.9	136.3	.3	2.4
Schools	130.0	130.3	132.6	133.4	133.4	133.5	135.7	136.2	136.6	.3	2.4
Elementary and secondary	130.2	130.5	132.6	133.1	133.1	133.3	135.5	135.8	136.1	.2	2.3
Colleges and universities	129.4	129.9	132.5	134.0	134.3	134.1	136.3	137.2	137.9	.5	2.7
Public administration[3]	129.2	129.6	130.7	131.8	133.0	133.0	134.1	135.1	136.4	1.0	2.6

[1] Cost (cents per hour worked) measured in the Employment Cost Index consists of wages, salaries, and employer cost of employee benefits.

[2] Consists of private industry workers (excluding farm and household workers) and State and local government (excluding Federal Government) workers.

[3] Consists of legislative, judicial, administrative, and regulatory activities.

[4] This series has the same industry and occupational coverage as the Hourly Earnings index, which was discontinued in January 1989.

[5] Includes, for example, library, social, and health services.

22. Employment Cost Index, wages and salaries, by occupation and industry group

[June 1989 = 100]

Series	1996				1997				1998	Percent change	
	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	3 months ended	12 months ended
										Mar. 1998	
Civilian workers[1]	125.1	126.1	127.2	128.0	129.2	130.1	131.6	132.8	134.0	0.9	3.7
Workers, by occupational group:											
White-collar workers	126.3	127.3	128.6	129.3	130.6	131.5	133.0	134.3	135.6	1.0	3.8
Professional specialty and technical	128.0	128.8	130.2	130.7	131.4	132.3	134.0	135.0	135.8	.6	3.3
Executive, administrative, and managerial	126.2	127.0	129.0	129.4	131.0	132.0	133.5	135.6	137.4	1.3	4.9
Administrative support, including clerical	126.4	127.1	128.4	129.1	130.4	131.4	132.7	133.7	135.0	1.0	3.5
Blue-collar workers	122.8	123.9	124.5	125.4	126.2	127.5	128.4	129.3	130.4	.9	3.3
Service occupations	124.2	124.9	126.2	127.6	128.6	129.3	131.5	132.6	133.7	.8	4.0
Workers, by industry division:											
Goods-producing	123.9	125.1	126.1	126.8	127.6	128.9	129.9	130.6	132.0	1.1	3.4
Manufacturing	125.4	126.5	127.7	128.4	129.1	130.3	131.3	132.2	133.7	1.1	3.6
Service-producing	125.6	126.5	127.7	128.5	129.8	130.6	132.2	133.6	134.8	.9	3.9
Services	128.0	128.9	130.3	131.1	132.0	132.9	134.8	136.0	136.9	.7	3.7
Health services	129.3	130.0	130.8	131.4	132.4	133.1	134.3	135.4	136.2	.6	2.9
Hospitals	128.6	129.2	130.0	130.5	131.0	131.5	132.5	133.6	134.2	.4	2.4
Educational services	128.8	129.1	131.6	132.3	132.5	132.6	135.3	135.9	136.3	.3	2.9
Public administration[4]	124.9	125.3	126.6	127.7	128.9	129.0	130.3	131.4	132.7	1.0	2.9
Nonmanufacturing	125.0	125.9	127.0	127.8	129.1	130.0	131.5	132.8	134.0	.9	3.8
Private industry workers	124.4	125.6	126.5	127.3	128.6	129.7	131.0	132.3	133.7	1.1	4.0
Excluding sales occupations	124.7	125.7	126.8	127.5	128.6	129.9	131.2	132.4	133.7	1.0	4.0
Workers, by occupational group:											
White-collar workers	125.8	127.0	128.0	128.7	130.2	131.3	132.7	134.2	135.7	1.1	4.2
Excluding sales occupations	126.7	127.6	129.0	129.4	130.8	132.0	133.4	134.8	136.3	1.1	4.2
Professional specialty and technical occupations	127.8	128.8	129.6	129.9	131.0	132.4	133.7	134.8	135.9	.8	3.7
Executive, adminitrative, and managerial occupations	125.9	126.8	128.9	129.3	131.0	132.1	133.6	135.8	137.8	1.5	5.2
Sales occupations	122.0	124.4	123.9	125.9	127.8	128.3	129.8	131.4	133.1	1.3	4.1
Administrative support occupations, including clerical	126.5	127.3	128.5	129.2	130.6	131.7	132.9	133.9	135.3	1.0	3.6
Blue-collar workers	122.5	123.7	124.3	125.1	126.0	127.3	128.3	129.1	130.2	.9	3.3
Precision production, craft, and repair occupations	122.4	123.7	124.2	125.1	125.8	127.4	128.2	128.7	129.8	.9	3.2
Machine operators, assemblers, and inspectors	123.4	124.5	125.4	126.4	127.2	128.5	129.5	130.6	131.6	.8	3.5
Transportation and material moving occupations	120.0	120.6	121.0	121.1	122.3	123.0	124.1	125.1	125.9	.6	2.9
Handlers, equipment cleaners, helpers, and laborers	124.2	125.1	125.8	127.1	128.4	129.3	130.2	131.8	133.2	1.1	3.7
Service occupations	122.2	123.0	124.1	125.7	126.6	127.6	129.9	131.1	132.1	.8	4.3
Production and nonsupervisory occupations[3]	123.7	124.9	125.6	126.5	127.7	128.8	130.1	131.2	132.3	.8	3.6
Workers, by industry division:											
Goods-producing	123.9	125.1	126.1	126.8	127.5	128.9	129.9	130.6	132.0	1.1	3.5
Excluding sales occupations	123.5	124.6	125.7	126.3	127.0	128.3	129.3	130.0	131.3	1.0	3.4
White-collar occupations	126.2	127.3	128.6	129.1	130.0	131.4	132.3	132.9	135.0	1.6	3.8
Excluding sales occupations	125.3	126.3	127.7	128.1	128.9	130.0	130.9	131.6	133.3	1.3	3.4
Blue-collar occupations	122.4	123.7	124.5	125.3	126.0	127.3	128.4	129.2	130.1	.7	3.3
Construction	118.3	119.6	120.4	120.8	122.0	123.6	124.7	124.9	126.0	.9	3.3
Manufacturing	125.4	126.5	127.7	128.4	129.1	130.3	131.3	132.2	133.7	1.1	3.6
White-collar occupations	127.1	128.2	129.6	130.1	130.6	131.9	132.8	133.6	135.6	1.5	3.8
Excluding sales occupations	126.0	127.0	128.4	128.9	129.3	130.5	131.3	132.2	133.8	1.2	3.5
Blue-collar occupations	124.2	125.4	126.3	127.3	128.0	129.2	130.2	131.2	132.3	.8	3.4
Durables	125.1	126.5	127.7	128.4	129.0	130.1	131.2	131.9	133.4	1.1	3.4
Nondurables	125.8	126.5	127.6	128.5	129.3	130.6	131.4	132.6	134.2	1.2	3.8
Service-producing	124.7	125.8	126.7	127.5	129.0	130.1	131.5	133.1	134.4	1.0	4.2
Excluding sales occupations	125.6	126.5	127.6	128.3	129.7	130.9	132.3	133.9	135.2	1.0	4.2
White-collar occupations	125.6	126.8	127.8	128.5	130.1	131.2	132.6	134.3	135.7	1.0	4.3
Excluding sales occupations	127.2	128.1	129.5	129.9	131.5	132.7	134.2	135.9	137.3	1.0	4.4
Blue-collar occupations	122.7	123.5	123.8	124.8	126.0	127.2	127.9	128.9	130.2	1.0	3.3
Service occupations	122.0	122.8	124.0	125.6	126.5	127.5	129.8	131.0	132.1	.8	4.4
Transportation and public utilities	124.6	125.0	125.9	127.0	128.2	128.8	130.1	131.3	132.1	.6	3.0
Transportation	122.9	123.2	123.8	124.7	126.5	126.9	128.5	129.5	130.1	.5	2.8
Public utilities	126.5	127.1	128.4	129.8	130.1	130.9	132.0	133.5	134.5	.7	3.4
Communications	126.1	126.5	128.2	130.3	129.8	130.6	131.8	134.0	134.4	.3	3.5
Electric, gas, and sanitary services	127.0	127.7	128.5	129.0	130.4	131.2	132.2	132.9	134.7	1.4	3.3
Wholesale and retail trade	123.9	124.8	125.8	127.0	128.5	129.7	130.9	131.6	133.3	1.3	3.7
Excluding sales occupations	124.4	124.9	126.5	127.7	129.3	131.1	132.2	133.2	134.7	1.1	4.2
Wholesale trade	126.1	128.0	128.5	129.6	131.4	132.2	133.0	133.6	136.2	1.9	3.7
Excluding sales occupations	126.3	127.6	128.9	129.8	131.8	132.8	133.9	135.0	136.5	1.1	3.6
Retail trade	122.8	123.1	124.4	125.8	127.1	128.5	129.9	130.6	131.9	1.0	3.8
Food stores	120.5	121.2	123.1	124.7	124.8	124.7	126.7	127.0	129.0	1.6	3.4
General merchandise stores	121.0	121.7	122.6	124.7	125.0	126.2	126.7	128.4	129.4	.8	3.5

See footnotes at end of table.

22. Continued—Employment Cost Index, wages and salaries, by occupation and industry group

[June 1989 = 100]

Series	1996				1997				1998	Percent change	
	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	3 months ended	12 months ended
										Mar. 1998	
Finance, insurance, and real estate	119.8	121.9	122.2	122.2	124.5	125.3	126.4	130.6	132.6	1.5	6.5
Excluding sales occupations	123.4	124.5	126.0	125.3	127.2	128.1	129.3	133.6	135.9	1.7	6.8
Banking, savings and loan, and other credit agencies	122.7	124.2	126.8	123.8	125.9	126.8	128.9	138.3	140.9	1.9	11.9
Insurance	123.6	124.1	125.4	126.0	127.9	128.0	128.7	130.2	133.1	2.2	4.1
Services	127.6	128.7	129.7	130.5	131.8	133.0	134.7	136.2	137.2	.7	4.1
Business services	126.9	127.7	128.5	130.1	131.4	132.4	134.9	137.3	137.6	.2	4.7
Health services	129.3	130.1	130.8	131.4	132.5	133.2	134.3	135.4	136.2	.6	2.8
Hospitals	128.5	129.1	129.7	130.3	130.7	131.2	132.2	133.2	133.6	.3	2.2
Educational services	130.1	130.4	133.3	133.8	134.5	134.8	137.8	138.4	139.1	.5	3.4
Colleges and universities	130.6	130.9	133.4	133.8	134.6	135.0	137.8	138.7	139.1	.3	3.3
Nonmanufacturing	123.9	125.1	125.9	126.8	128.2	129.3	130.7	132.1	133.4	1.0	4.1
White-collar workers	125.4	126.6	127.6	128.3	129.9	131.0	132.4	134.1	135..5	1.0	4.3
Excluding sales occupations	126.9	127.8	129.2	129.6	131.2	132.4	133.8	135.5	136.9	1.0	4.3
Blue-collar occupations	120.9	122.0	122.4	123.1	124.1	125.5	126.4	127.1	128.2	.9	3.3
Service occupations	122.0	122.7	123.9	125.5	126.4	127.4	129.7	130.9	132.0	.8	4.4
State and local government workers	127.8	128.1	130.1	130.9	131.4	131.5	133.6	134.4	135.1	.5	2.8
Workers, by occupational group:											
White-collar workers	127.9	128.2	130.3	131.1	131.4	131.5	133.7	134.5	135.0	.4	2.7
Professional specialty and technical	128.3	128.6	131.1	131.7	131.9	132.0	134.4	135.1	135.5	.3	2.7
Executive, administrative, and managerial	127.7	128.0	129.3	130.2	131.3	131.7	133.1	134.1	135.1	.7	2.9
Administrative support, including clerical	125.8	126.1	127.7	129.0	129.2	129.5	131.4	132.3	133.0	.5	2.9
Blue-collar workers	126.6	127.0	127.9	128.8	129.6	129.8	131.2	132.3	133.1	.6	2.7
Workers, by industry division:											
Services	128.6	128.9	131.2	131.9	132.1	132.2	134.7	135.3	135.7	.3	2.7
Services excluding schools[4]	128.2	128.7	130.1	130.5	131.2	131.6	133.3	134.4	135.4	.7	3.2
Health services	129.3	129.9	131.1	131.4	132.1	132.6	133.9	135.3	136.3	.7	3.2
Hospitals	129.1	129.7	130.9	131.3	131.9	132.4	133.7	135.2	136.3	.8	3.3
Educational services	128.5	128.8	131.3	132.0	132.1	132.2	134.8	135.3	135.7	.3	2.7
Schools	128.7	128.9	131.4	132.2	132.2	132.3	134.9	135.5	135.8	.2	2.7
Elementary and secondary	129.3	129.5	132.0	132.4	132.4	132.6	135.3	135.7	136.0	.2	2.7
Colleges and universities	126.8	127.1	129.8	131.2	131.5	131.4	133.6	134.6	135.2	.4	2.8
Public administration[4]	124.9	125.3	126.6	127.7	128.9	129.0	130.3	131.4	132.7	1.0	2.9

[1] Consists of private industry workers (excluding farm and household workers) and State and local government (excluding Federal Government) workers.

[2] Consists of legislative, judicial, administrative, and regulatory activities.

[3] This series has the same industry and occupational coverage as the Hourly Earnings index, which was discontinued in January 1989.

[4] Includes, for example, library, social, and health services.

23. Employment Cost Index, benefits, private industry workers by occupation and industry group

[June 1989 = 100]

Series	1996				1997				1998	Percent change	
	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	3 months ended	12 months ended
										Mar. 1998	
Private industry workers	136.6	137.4	138.1	138.6	139.4	140.1	140.8	141.8	142.6	0.6	2.3
Workers, by occupational group:											
White-collar workers	137.7	138.4	139.5	139.7	140.8	141.5	142.0	143.4	144.7	.9	2.8
Blue-collar workers	135.2	136.1	136.2	137.0	137.2	138.0	138.8	139.0	139.1	.1	1.4
Workers, by industry division:											
Goods-producing	137.7	138.6	138.8	139.7	139.9	140.9	141.5	141.5	141.5	.0	1.1
Service-producing	135.5	136.2	137.2	137.4	138.5	139.2	139.8	141.4	142.7	.9	3.0
Manufacturing	137.5	138.5	138.8	139.8	139.9	141.0	141.4	141.7	141.7	.0	1.3
Nonmanufacturing	136.0	136.7	137.5	137.9	138.9	139.5	140.2	141.5	142.7	.8	2.7

24. Employment Cost Index, private nonfarm workers by bargaining status, region, and area size

[June 1989 = 100]

Series	1996				1997				1998	Percent change	
	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	3 months ended Mar. 1998	12 months ended Mar. 1998
COMPENSATION											
Workers, by bargaining status[1]											
Union	128.5	129.7	130.1	130.8	131.0	131.8	133.2	133.5	134.0	0.4	2.3
Goods-producing	127.9	129.0	129.2	129.8	130.0	131.2	132.3	132.5	132.7	.2	2.1
Service-producing	129.0	130.3	131.0	131.7	131.9	132.4	134.0	134.5	135.3	.6	2.6
Manufacturing	128.8	129.8	129.8	130.6	130.8	131.7	133.0	133.3	133.6	.2	2.1
Nonmanufacturing	128.0	129.2	129.9	130.4	130.6	131.5	132.9	133.2	133.9	.5	2.5
Nonunion	127.7	128.7	129.7	130.4	131.8	132.8	133.9	135.3	136.7	1.0	3.7
Goods-producing	128.3	129.4	130.4	131.3	132.0	133.2	134.0	134.7	135.9	.9	3.0
Service-producing	127.3	128.3	129.2	129.9	131.5	132.5	133.7	135.3	136.7	1.0	4.0
Manufacturing	129.3	130.5	131.7	132.5	133.1	134.4	135.1	135.9	137.2	1.0	3.1
Nonmanufacturing	127.0	128.0	128.9	129.6	131.1	132.2	133.4	134.9	136.3	1.0	4.0
Workers, by region[1]											
Northeast	128.9	129.7	130.6	131.1	132.2	133.1	134.0	135.0	136.0	.7	2.9
South	127.0	127.8	128.8	129.7	130.8	131.5	132.5	134.6	135.5	.7	3.6
Midwest (formerly North Central)	129.5	130.7	131.3	132.1	133.3	134.7	136.2	136.9	138.3	1.0	3.8
West	125.9	127.3	128.3	128.9	130.3	131.4	132.5	133.4	135.2	1.3	3.8
Workers, by area size[1]											
Metropolitan areas	128.0	129.1	130.0	130.6	131.7	132.8	133.9	135.1	136.4	1.0	3.6
Other areas	127.2	128.0	128.7	130.2	131.4	132.4	133.8	135.3	135.9	.4	3.4
WAGES AND SALARIES											
Workers, by bargaining status[1]											
Union	122.8	124.2	124.8	125.4	126.0	126.9	128.3	128.9	129.6	.5	2.9
Goods-producing	121.3	122.5	123.2	123.6	124.1	125.4	126.6	127.1	127.9	.6	3.1
Service-producing	124.8	126.2	126.8	127.6	128.2	128.8	130.4	131.2	131.8	.5	2.8
Manufacturing	122.9	123.9	124.5	125.2	125.6	126.5	127.8	128.6	129.6	.8	3.2
Nonmanufacturing	122.8	124.3	124.9	125.5	126.1	127.1	128.6	129.1	129.6	.4	2.8
Nonunion	124.8	125.9	126.9	127.7	129.1	130.3	131.6	133.0	134.5	1.1	4.2
Goods-producing	124.9	126.1	127.3	128.0	128.9	130.2	131.2	132.0	133.6	1.2	3.6
Service-producing	124.6	125.7	126.6	127.5	129.1	130.2	131.6	133.2	134.6	1.1	4.3
Manufacturing	126.3	127.5	128.8	129.6	130.3	131.7	132.6	133.5	135.1	1.2	3.7
Nonmanufacturing	124.2	125.2	126.1	127.0	128.5	129.7	131.1	132.6	134.0	1.1	4.3
Workers, by region[1]											
Northeast	124.9	126.0	127.0	127.7	128.8	129.8	130.7	131.6	132.6	.8	3.0
South	124.1	125.1	126.0	127.0	128.5	129.4	130.6	133.0	134.0	.8	4.3
Midwest (formerly North Central)	125.1	126.2	126.9	127.7	129.0	130.4	132.2	133.0	134.7	1.3	4.4
West	123.3	124.8	125.8	126.5	127.7	128.9	130.2	131.2	132.9	1.3	4.1
Workers, by area size[1]											
Metropolitan areas	124.6	125.8	126.7	127.4	128.7	129.9	131.1	132.3	133.8	1.1	4.0
Other areas	123.4	124.2	125.0	126.5	127.7	128.8	130.4	132.0	132.5	.4	3.8

[1] The indexes are calculated differently from those for the occupation and industry groups. For a detailed description of the index calculation, see the *Monthly Labor Review* Technical Note, "Estimation procedures for the Employment Cost Index," May 1982.

25. Percent of full-time employees participating in employer-provided benefit plans, and in selected features within plans, medium and large private establishments, selected years, 1980–93

Item	1980	1982	1984	1986	1988	1989	1991	1993
Scope of survey (in 000's)	21,352	21,043	21,013	21,303	31,059	32,428	31,163	28,728
Number of employees (in 000's):								
With medical care	20,711	20,412	20,383	20,238	27,953	29,834	25,865	23,519
With life insurance	20,498	20,201	20,172	20,451	28,574	30,482	29,293	26,175
With defined benefit plan	17,936	17,676	17,231	16,190	19,567	20,430	18,386	16,015
Time-off plans								
Participants with:								
Paid lunch time	10	9	9	10	11	10	8	9
Average minutes per day	–	25	26	27	29	26	30	29
Paid rest time	75	76	73	72	72	71	67	68
Average minutes per day	–	25	26	26	26	26	28	26
Paid funeral leave	–	–	–	88	85	84	80	83
Average days per occurrence	–	–	–	3.2	3.2	3.3	3.3	3.0
Paid holidays	99	99	99	99	96	97	92	91
Average days per year	10.1	10.0	9.8	10.0	9.4	9.2	10.2	9.4
Paid personal leave	20	24	23	25	24	22	21	21
Average days per year	–	3.8	3.6	3.7	3.3	3.1	3.3	3.1
Paid vacations	100	99	99	100	98	97	96	97
Paid sick leave	62	67	67	70	69	68	67	65
Unpaid maternity leave	–	–	–	–	33	37	37	60
Unpaid paternity leave	–	–	–	–	16	18	26	53
Insurance plans								
Participants in medical care plans	97	97	97	95	90	92	83	82
Percent of participants with coverage for:								
Home health care	–	–	46	66	76	75	81	86
Extended care facilities	58	62	62	70	79	80	80	82
Physical exam	–	–	8	18	28	28	30	42
Percent of participants with employee contribution required for:								
Self coverage	26	27	36	43	44	47	51	61
Average monthly contribution	–	–	$11.93	$12.80	$19.29	$25.31	$26.60	$31.55
Family coverage	46	51	58	63	64	66	69	76
Average monthly contribution	–	–	$35.93	$41.40	$60.07	$72.10	$96.97	$107.42
Participants in life insurance plans	96	96	96	96	92	94	94	91
Percent of participants with:								
Accidental death and dismemberment insurance	69	72	74	72	78	71	71	76
Survivor income benefits	–	–	–	10	8	7	6	5
Retiree protection available	–	64	64	59	49	42	44	41
Participants in long-term disability insurance plans	40	43	47	48	42	45	40	41
Participants in sickness and accident insurance plans	54	51	51	49	46	43	45	44
Retirement plans								
Participants in defined benefit pension plans	84	84	82	76	63	63	59	56
Percent of participants with:								
Normal retirement prior to age 65	55	58	63	64	59	62	55	52
Early retirement available	98	97	97	98	98	97	98	95
Ad hoc pension increase in last 5 years	–	–	47	35	26	22	7	6
Terminal earnings formula	53	52	54	57	55	64	56	61
Benefit coordinated with Social Security	45	45	56	62	62	63	54	48
Participants in defined contribution plans	–	–	–	60	45	48	48	49
Participants in plans with tax-deferred savings arrangements	–	–	–	33	36	41	44	43
Other benefits								
Employees eligible for:								
Flexible benefits plans	–	–	–	2	5	9	10	12
Reimbursement accounts	–	–	–	5	12	23	36	52

NOTE: Dash indicates data not available.

26. Percent of full-time employees participating in employer-provided benefit plans, and in selected features within plans, small private establishments and State and local governments, 1987, 1990, 1992, and 1994

Item	Small private establishments			State and local governments			
	1990	1992	1994	1987	1990	1992	1994
Scope of survey (in 000's)	32,466	34,360	35,910	10,321	12,972	12,466	12,907
Number of employees (in 000's):							
With medical care	22,402	24,396	23,536	9,599	12,064	11,219	11,192
With life insurance	20,778	21,990	21,955	8,773	11,415	11,095	11,194
With defined benefit plan	6,493	7,559	5,480	9,599	11,675	10,845	11,708
Time-off plans							
Participants with:							
Paid lunch time	8	9	–	17	11	10	–
Average minutes per day	37	37	–	34	36	34	–
Paid rest time	48	49	–	58	56	53	–
Average minutes per day	27	26	–	29	29	29	–
Paid funeral leave	47	50	50	56	63	65	62
Average days per occurrence	2.9	3.0	3.1	3.7	3.7	3.7	3.7
Paid holidays	84	82	82	81	74	75	73
Average days per year[1]	9.5	9.2	7.5	10.9	13.6	14.2	11.5
Paid personal leave	11	12	13	38	39	38	38
Average days per year	2.8	2.6	2.6	2.7	2.9	2.9	3.0
Paid vacations	88	88	88	72	67	67	66
Paid sick leave	47	53	50	97	95	95	94
Unpaid leave	17	18	–	57	51	59	–
Unpaid paternity leave	8	7	–	30	33	44	–
Unpaid family leave	–	–	47	–	–	–	93
Insurance plans							
Participants in medical care plans	69	71	66	93	93	90	87
Percent of participants with coverage for:							
Home health care	79	80	–	76	82	87	84
Extended care facilities	83	84	–	78	79	84	81
Physical exam	26	28	–	36	36	47	55
Percent of participants with employee contribution required for:							
Self coverage	42	47	52	35	38	43	47
Average monthly contribution	$25.13	$36.51	$40.97	$15.74	$25.53	$28.97	$30.20
Family coverage	67	73	76	71	65	72	71
Average monthly contribution	$109.34	$150.54	$159.63	$71.89	$117.59	$139.23	$149.70
Participants in life insurance plans	64	64	61	85	88	89	87
Percent of participants with:							
Accidental death and dismemberment insurance	78	76	79	67	67	74	64
Survivor income benefits	1	1	2	1	1	1	2
Retiree protection available	19	25	20	55	45	46	46
Participants in long-term disability insurance plans	19	23	20	31	27	28	30
Participants in sickness and accident insurance plans	6	26	26	14	21	22	21
Retirement plans							
Participants in defined benefit pension plans	20	22	15	93	90	87	91
Percent of participants with:							
Normal retirement prior to age 65	54	50	–	92	89	92	92
Early retirement available	95	95	–	90	88	89	87
Ad hoc pension increase in last 5 years	7	4	–	33	16	10	13
Terminal earnings formula	58	54	–	100	100	100	99
Benefit coordinated with Social Security	49	46	–	18	8	10	49
Participants in defined contribution plans	31	33	34	9	9	9	9
Participants in plans with tax-deferred savings arrangements	17	24	23	28	45	45	24
Other benefits							
Employees eligible for:							
Flexible benefits plans	1	2	3	5	5	5	5
Reimbursement accounts	8	14	19	5	31	50	64

[1] Methods used to calculate the average number of paid holidays were revised in 1994 to count partial days more precisely. Average holidays for 1994 are not comparable with those reported in 1990 and 1992.

NOTE: Dash indicates data not available.

27. Work stoppages involving 1,000 workers or more

Measure	Annual totals		1997											1998
	1996	1997	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.[p]
Number of stoppages:															
Beginning in period	37	29	1	0	1	6	6	0	3	2	6	3	1	0	1
In effect during period	38	38	6	4	4	7	12	3	5	3	6	5	3	2	1
Workers involved:															
Beginning in period (in thousands)	273	339	4.3	.0	2.7	55.8	16.9	.0	30.8	184.5	30.3	4.4	8.9	.0	8.0
In effect during period (in thousands)	275	351	16.3	9.9	10.1	60.6	60.5	12.0	41.5	189.3	30.3	8.6	11.1	2.2	8.0
Days idle:															
Number (in thousands)	4,889	4,497	238.7	170.6	144.3	537.7	567.4	231.2	247.1	2,075.4	128.4	64.0	48.5	43.8	16.0
Percent of estimated working time[1]	.02	.01	.01	.01	.01	.02	.02	.01	.01	.08	.00	.00	.00	.00	([2])

[1] Agricultural and government employees are included in the total employed and total working time; private household, forestry, and fishery employees are excluded. An explanation of the measurement of idleness as a percentage of the total time worked is found in "Total economy measures of strike idleness," *Monthly Labor Review*, October 1968, pp. 54–56.

[2] Less than 0.005.

28. Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

[1982–84 = 100, unless otherwise indicated]

Series	Annual average		1997									1998			
	1996	1997	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
CONSUMER PRICE INDEX FOR ALL URBAN CONSUMERS															
All items	156.9	160.5	160.2	160.1	160.3	160.5	160.8	161.2	161.6	161.5	161.3	161.6	161.9	162.2	162.5
Food and beverages	153.7	157.7	157.1	157.1	157.1	157.5	158.1	158.4	158.7	158.9	159.1	160.3	159.8	160.1	160.2
Food	153.3	157.3	156.6	156.6	156.6	157.0	157.6	157.9	158.2	158.5	158.7	159.9	159.4	159.7	159.8
Food at home	154.3	158.1	157.5	157.5	157.3	157.7	158.5	158.6	159.0	159.1	159.2	161.0	160.0	160.2	160.2
Cereals and bakery products	174.0	177.6	176.9	176.9	178.2	178.3	178.6	178.1	178.4	178.0	178.4	179.0	179.7	179.6	180.2
Meats, poultry, fish, and eggs	144.8	148.5	147.7	147.7	147.9	148.2	149.1	149.1	148.9	149.3	148.4	148.3	147.5	147.2	146.3
Dairy and related products[1]	142.1	145.5	145.7	145.4	144.1	143.3	143.4	143.5	145.7	147.0	147.8	148.3	147.7	148.4	148.5
Fruits and vegetables	183.9	187.5	186.4	186.4	183.7	184.6	187.3	188.1	188.5	189.5	191.3	202.1	193.8	196.1	197.5
Nonalcoholic beverages and beverage materials	128.6	133.4	131.9	133.4	134.8	136.3	136.7	136.7	136.6	134.7	133.1	134.1	134.8	134.2	133.9
Other foods at home	142.9	147.3	146.9	147.1	147.8	148.6	148.7	148.9	149.0	147.7	147.7	148.7	149.1	149.5	149.6
Sugar and sweets	143.7	147.8	147.9	147.9	148.1	149.2	147.8	148.5	148.2	147.4	147.9	150.3	149.6	150.8	150.1
Fats and oils	140.5	141.7	142.4	142.0	141.6	141.4	141.4	142.0	141.7	140.4	140.3	140.5	141.5	142.2	140.7
Other foods	156.2	161.2	161.1	160.4	161.2	161.3	161.8	161.9	162.5	161.5	162.8	163.6	164.2	164.3	165.0
Other miscellaneous foods[1,2]	–	–	–	–	–	–	–	–	–	–	100.0	100.4	100.4	101.5	101.7
Food away from home[1]	152.7	157.0	156.2	156.3	156.6	157.1	157.4	157.8	158.2	158.6	159.0	159.2	159.6	159.9	160.2
Other food away from home[1,2]	–	–	–	–	–	–	–	–	–	–	100.0	100.1	100.4	100.3	100.6
Alcoholic beverages	158.5	162.8	162.3	162.8	162.7	162.9	163.2	163.5	163.7	163.7	164.0	164.6	165.0	165.1	165.2
Housing	152.8	156.8	155.8	155.9	156.9	157.5	157.6	157.7	157.7	157.7	157.7	158.3	158.8	159.2	159.5
Shelter	171.0	176.3	175.3	175.3	176.0	177.0	177.5	177.2	177.8	177.7	178.1	179.2	180.1	180.8	181.0
Rent of primary residence	162.0	166.7	165.5	165.9	166.4	166.8	167.3	167.8	168.2	168.7	169.1	169.5	169.9	170.3	170.7
Lodging away from home[2]	–	–	–	–	–	–	–	–	–	–	100.0	105.1	109.3	111.2	110.2
Owners' equivalent rent of primary residence[3]	176.8	181.9	180.5	180.9	181.4	182.1	182.6	183.2	183.6	184.2	184.7	185.1	185.5	185.9	186.4
Tenants' and household insurance[1,2]	–	–	–	–	–	–	–	–	–	–	100.0	100.3	100.2	100.3	100.4
Fuels and utilities	127.5	130.8	128.9	129.0	131.9	132.1	131.4	132.1	130.8	131.1	130.0	128.8	127.4	127.1	127.0
Fuels	115.2	117.9	115.3	115.3	119.8	119.6	118.6	119.7	117.4	117.7	115.8	114.5	112.8	112.5	112.3
Fuel oil and other fuels	99.2	99.8	102.1	100.4	98.0	94.7	93.5	93.7	95.3	96.6	97.2	96.4	95.2	94.4	92.8
Gas (piped) and electricity	122.1	125.1	121.7	121.9	127.5	127.8	126.7	128.1	125.1	125.3	123.0	121.6	119.7	119.4	119.4
Household furnishings and operations	124.7	125.4	125.5	125.8	125.7	125.6	125.2	125.4	125.4	125.2	125.1	125.6	126.1	126.3	127.0
Apparel	131.7	132.9	136.1	135.3	132.4	130.2	130.0	133.0	134.9	134.7	131.6	129.8	131.9	134.9	135.8
Men's and boys' apparel	127.7	130.1	131.4	132.0	129.0	128.0	128.9	131.4	133.1	133.0	131.2	129.8	130.8	133.6	133.4
Women's and girls' apparel	124.7	126.1	131.9	129.9	125.6	121.1	120.3	126.0	128.3	128.8	123.6	120.2	124.3	129.9	130.9
Infants' and toddlers' apparel[1]	129.7	129.0	133.7	133.8	132.9	131.3	127.3	126.7	126.2	126.0	125.8	124.8	123.1	124.4	126.6
Footwear	126.6	127.6	129.3	129.1	126.3	125.9	126.3	127.4	130.6	129.3	128.2	127.4	126.6	126.5	127.9
Transportation	143.0	144.3	144.8	144.4	144.0	143.7	143.8	144.3	144.5	143.9	143.2	142.7	142.1	141.4	141.5
Private transportation	140.0	141.0	141.3	141.0	140.7	140.1	140.8	141.0	140.9	140.6	140.0	139.3	138.4	137.5	137.7
New and used motor vehicles[2]	–	–	101.5	101.1	100.6	100.1	99.5	99.3	99.6	99.9	100.0	100.2	100.2	100.1	100.1
New vehicles	143.7	144.3	145.2	144.6	144.2	143.7	143.0	142.7	143.3	144.0	144.1	144.4	144.4	144.4	144.3
Used cars and trucks[1]	157.0	151.1	154.3	153.9	151.8	149.9	148.5	148.2	147.9	147.6	147.9	148.1	148.4	147.3	148.2
Motor fuel	106.3	106.2	106.0	105.7	105.9	103.9	107.6	109.3	106.7	104.6	101.9	97.8	94.1	90.9	91.7
Gasoline (all types)	105.9	105.8	105.4	105.2	105.4	103.5	107.4	109.2	106.5	104.1	101.3	97.2	93.5	90.3	91.1
Motor vehicle parts and equipment	102.2	101.9	101.8	101.7	101.7	102.3	101.8	101.7	101.4	101.6	101.4	101.3	101.4	101.2	100.5
Motor vehicle maintenance and repair	158.4	162.7	161.9	162.2	162.6	162.9	163.3	163.5	163.9	164.0	164.7	165.0	165.5	165.7	165.7
Public transportation	181.9	186.7	189.8	188.1	186.6	189.4	183.4	186.0	190.9	185.9	184.3	187.1	191.2	193.7	193.4
Medical care	228.2	234.6	233.8	234.2	234.4	234.8	235.2	235.4	235.8	236.4	237.1	238.1	239.3	239.8	240.7
Medical care commodities	210.4	215.3	215.2	215.6	216.0	216.0	215.5	215.3	215.6	215.8	216.8	217.6	218.4	218.5	220.2
Medical care services	232.4	239.1	238.1	238.5	238.7	239.2	239.8	240.0	240.5	241.2	241.8	242.9	244.2	244.8	245.4
Professional services	208.3	215.4	214.7	215.2	215.5	215.9	216.3	216.4	216.8	217.1	217.5	218.5	219.7	220.4	221.1
Hospital and related services	269.5	278.4	277.0	277.3	277.4	278.1	279.0	279.4	280.2	281.3	282.5	283.5	285.2	285.2	285.6
Recreation[2]	–	–	99.3	99.4	99.8	99.8	100.0	99.9	100.0	100.0	100.0	100.3	100.7	101.0	101.1
Video and audio[1,2]	–	–	98.4	98.9	99.6	99.9	100.0	99.9	99.9	100.3	100.0	100.6	101.2	101.4	101.4
Education and communication[2]	–	–	97.5	97.6	97.7	97.9	98.6	99.7	99.9	100.0	100.0	99.9	99.8	99.9	99.9
Education[2]	–	–	95.6	95.8	95.9	96.2	97.8	99.6	99.9	99.9	100.0	100.3	100.4	100.5	100.7
Educational books and supplies	226.9	238.4	235.8	235.9	237.2	237.7	240.0	241.5	242.4	242.4	242.8	245.1	246.9	247.5	248.8
Tuition, other school fees, and child care	267.1	280.4	275.4	276.1	277.0	281.9	287.5	288.2	288.3	288.5	289.2	289.2	289.2	289.5	290.0
Communication[1,2]	–	–	100.6	100.6	100.7	100.6	99.8	99.8	100.0	100.1	100.0	99.6	99.2	99.3	99.3
Information and information processing[1,2]	–	–	100.6	100.6	100.8	100.7	99.8	99.8	100.0	100.1	100.0	99.6	99.1	99.3	99.2
Telephone services[1,2]	–	–	–	–	–	–	–	–	–	–	100.0	99.9	100.0	100.4	100.5
Information and information processing other than telephone services[1,4]	57.2	50.1	51.4	50.8	49.9	49.1	48.2	48.5	48.9	47.6	47.4	46.2	44.3	43.4	42.8
Personal computers and peripheral equipment[1,2]	–	–	–	–	–	–	–	–	–	–	100.0	96.9	91.3	88.7	86.6
Other goods and services	215.4	224.8	222.7	223.1	223.1	223.5	225.7	228.1	229.4	229.9	230.1	231.3	233.1	232.4	234.7
Tobacco and smoking products	232.8	243.7	243.2	243.8	241.3	242.0	243.4	246.5	250.2	250.7	251.2	253.8	261.2	254.1	263.5
Personal care[1]	150.1	152.7	152.7	152.6	152.8	152.6	152.5	152.7	153.3	154.3	154.0	154.6	155.0	155.5	155.9
Personal care products[1]	144.3	144.2	144.5	144.1	144.2	143.7	143.5	143.7	144.5	146.1	145.3	146.1	146.7	147.3	147.3
Personal care services[1]	156.6	162.4	162.0	162.3	162.6	162.5	162.7	162.7	163.4	163.5	163.9	164.3	164.3	164.7	165.2
Miscellaneous personal services	215.6	226.1	224.1	225.0	226.5	226.9	228.6	228.4	228.9	229.5	230.0	230.9	232.1	232.8	233.5

28. Continued—Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

[1982–84 = 100, unless otherwise indicated]

Series	Annual average		1997									1998			
	1996	1997	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Commodity and service group:															
Commodities	139.9	141.8	142.3	142.1	141.5	141.0	141.4	142.1	142.4	142.3	141.7	141.6	141.5	141.5	142.0
Food and beverages	153.7	157.7	157.1	157.1	157.1	157.5	158.1	158.4	158.7	158.9	159.1	160.3	159.8	160.1	160.2
Commodities less food and beverages	131.5	132.2	133.2	132.9	132.0	131.0	131.3	132.2	132.5	132.2	131.2	130.5	130.5	130.4	131.0
Nondurables less food and beverages	133.0	134.6	135.8	135.4	134.2	132.9	133.8	135.5	135.8	135.3	133.5	132.0	132.1	132.1	133.0
Apparel	131.7	132.9	136.1	135.3	132.4	130.2	130.0	133.0	134.9	134.7	131.6	129.8	131.9	134.9	135.8
Nondurables less food, beverages, and apparel	138.6	140.6	140.6	140.4	140.1	139.3	140.8	141.9	141.3	140.6	139.5	138.1	137.2	135.6	136.6
Durables	129.4	128.7	129.6	129.4	129.0	128.3	127.7	127.6	127.8	127.9	128.0	128.2	128.2	128.0	128.1
Services	174.1	179.4	178.3	178.4	179.3	180.1	180.3	180.6	181.0	181.0	181.0	181.8	182.4	182.9	183.2
Rent of shelter[3]	178.0	183.4	182.4	182.4	183.1	184.1	184.7	184.4	185.0	185.0	185.3	186.5	187.5	188.1	188.4
Transporatation services	180.5	185.0	185.4	184.9	184.5	185.6	184.3	184.7	186.9	186.2	186.0	187.1	187.9	188.4	188.3
Other services	201.4	209.6	207.7	208.0	208.8	209.1	210.7	212.2	212.7	212.7	213.1	213.7	214.4	215.1	215.6
Special indexes:															
All items less food	157.5	161.1	160.8	160.7	161.0	161.1	161.3	161.8	162.2	162.1	161.8	161.9	162.3	162.6	163.0
All items less shelter	152.8	155.9	155.8	155.7	155.7	155.6	155.9	156.6	156.9	156.8	156.4	156.4	156.4	156.5	156.9
All items less medical care	152.8	156.3	156.0	155.9	156.1	156.3	156.6	157.1	157.4	157.3	157.0	157.3	157.5	157.8	158.1
Commodities less food	132.6	133.4	134.4	134.1	133.3	132.3	132.6	133.5	133.8	133.5	132.6	131.9	131.9	131.8	132.4
Nondurables less food	134.5	136.3	137.4	137.0	135.9	134.7	135.5	137.2	137.4	137.0	135.3	133.9	134.1	134.1	135.0
Nondurables less food and apparel	139.5	141.8	141.7	141.7	141.4	140.8	142.1	143.0	142.5	141.9	141.0	139.8	138.9	137.5	138.4
Nondurables	143.5	146.4	146.6	146.4	145.8	145.4	146.1	147.1	147.4	147.3	146.5	146.2	146.1	146.2	146.7
Services less rent of shelter[3]	182.5	188.1	186.8	186.9	188.1	188.8	188.7	189.5	189.8	189.8	189.5	189.9	190.1	190.6	190.8
Services less medical care services	168.7	173.9	172.8	172.8	173.8	174.6	174.8	175.1	175.5	175.4	175.4	176.1	176.6	177.2	177.4
Energy	110.1	111.5	110.0	109.9	112.3	111.4	112.5	113.9	111.5	110.7	108.4	105.9	103.2	101.6	101.9
All items less energy	163.1	167.1	166.8	166.8	166.7	167.0	167.3	167.6	168.3	168.3	168.3	169.0	169.6	170.1	170.4
All items less food and energy	165.6	169.5	169.4	169.3	169.2	169.5	169.6	170.0	170.8	170.8	170.7	171.2	172.1	172.6	173.0
Commodities less food and energy	141.3	142.3	143.5	143.3	142.2	141.5	141.2	142.0	142.7	142.8	142.1	142.0	142.7	143.1	143.8
Energy commodities	105.7	105.7	105.8	105.3	105.2	103.1	106.2	107.7	105.7	103.9	101.6	97.8	94.3	91.3	91.8
Services less energy	179.4	185.0	184.1	184.1	184.6	185.4	185.8	186.0	186.7	186.7	186.9	187.9	188.8	189.4	189.7
CONSUMER PRICE INDEX FOR URBAN WAGE EARNERS AND CLERICAL WORKERS															
All items	154.1	157.6	157.2	157.2	157.4	157.5	157.8	158.3	158.5	158.5	158.2	158.4	158.5	158.7	159.1
Food and beverages	153.2	157.2	156.5	156.6	156.6	157.0	157.6	157.8	158.1	158.3	158.5	159.6	159.2	159.4	159.5
Food	152.8	156.8	156.1	156.1	156.1	156.6	157.1	157.4	157.7	157.9	158.1	159.3	158.8	159.1	159.1
Food at home	153.5	157.2	156.6	156.6	156.5	156.9	157.6	157.7	158.0	158.1	158.2	159.9	158.9	159.2	159.1
Cereals and bakery products	173.6	177.3	176.6	176.7	177.9	177.9	178.2	177.7	178.0	177.8	178.1	178.8	179.4	179.3	179.9
Meats, poultry, fish, and eggs	144.5	148.2	147.3	147.4	147.5	148.0	148.8	148.7	148.5	149.0	148.0	148.0	147.2	146.9	146.0
Dairy and related products[1]	141.9	145.2	145.4	145.1	143.8	143.0	143.0	143.2	145.5	146.8	147.5	147.9	147.4	148.1	148.2
Fruits and vegetables	183.1	186.6	185.2	185.4	183.1	184.0	186.9	187.5	187.7	188.4	190.0	200.9	192.4	194.8	196.3
Nonalcoholic beverages and beverage materials	128.1	132.3	131.1	132.4	133.6	134.9	135.2	135.2	135.2	133.3	131.7	132.9	133.6	133.1	132.7
Other foods at home	142.6	146.8	146.4	146.6	147.2	147.9	148.0	148.2	148.4	147.0	147.1	148.1	148.5	148.9	148.9
Sugar and sweets	143.6	147.7	147.9	147.9	148.1	149.2	147.8	148.4	148.0	147.3	147.7	150.2	149.5	151.0	150.0
Fats and oils	140.3	141.4	142.1	141.7	141.3	141.1	141.2	141.7	141.4	140.2	140.0	140.4	141.4	141.9	140.4
Other foods	156.0	161.1	161.0	160.3	160.9	161.2	161.6	161.8	162.3	161.3	162.7	163.6	164.1	164.3	165.0
Other miscellaneous foods[1,2]	–	–	–	–	–	–	–	–	–	–	100.0	100.5	100.5	101.8	101.7
Food away from home[1]	152.6	157.0	156.2	156.2	156.6	157.1	157.4	157.8	158.2	158.6	159.0	159.3	159.6	159.9	160.2
Other food away from home[1,2]	–	–	–	–	–	–	–	–	–	–	100.0	100.1	100.3	100.3	100.6
Alcoholic beverages	157.9	162.1	161.7	162.2	162.1	162.2	162.5	162.6	162.8	162.8	163.1	163.6	163.9	164.0	164.2
Housing	149.6	153.4	152.4	152.6	153.6	154.1	154.2	154.4	154.4	154.5	154.4	154.8	155.1	155.5	155.8
Shelter	166.2	171.2	170.1	170.3	170.9	171.7	172.3	172.2	172.7	172.8	173.1	173.9	174.6	175.2	175.5
Rent of primary residence	161.6	166.3	165.2	165.6	166.0	166.5	167.0	167.5	167.9	168.4	168.8	169.2	169.6	170.0	170.3
Lodging away from home[2]	–	–	–	–	–	–	–	–	–	–	100.0	104.8	108.6	110.8	110.3
Owners' equivalent rent of primary residence[3]	161.2	165.8	164.6	164.9	165.4	166.0	166.5	167.0	167.4	167.9	168.3	168.7	169.1	169.5	169.9
Tenants' and household insurance[1,2]	–	–	–	–	–	–	–	–	–	–	100.0	100.4	100.2	100.5	100.5
Fuels and utilities	127.2	130.5	128.6	128.7	131.7	131.9	131.2	131.9	130.6	130.9	129.7	128.6	127.1	126.9	126.9
Fuels	114.7	117.3	114.7	114.7	119.2	119.1	118.1	119.3	116.8	117.3	115.2	113.9	112.2	111.9	111.8
Fuel oil and other fuels	99.0	99.6	101.7	100.0	97.6	94.5	93.2	93.4	95.0	96.4	97.0	96.2	95.1	94.5	93.1
Gas (piped) and electricity	121.6	124.6	121.2	121.5	127.0	127.3	126.2	127.6	124.6	124.9	122.4	121.0	119.2	118.9	118.9
Household furnishings and operations	123.2	123.9	124.0	124.3	124.2	124.1	123.7	123.9	123.9	123.7	123.6	124.1	124.7	125.0	125.6
Apparel	130.9	132.1	135.5	134.7	131.8	129.8	129.4	132.1	133.9	133.6	130.3	128.7	130.4	133.0	134.0
Men's and boys' apparel	127.4	129.9	131.1	131.7	128.8	128.0	128.8	131.2	132.4	132.7	130.7	129.4	130.1	132.8	132.9
Women's and girls' apparel	123.6	124.9	130.7	129.0	124.8	120.6	119.6	124.6	126.8	127.0	121.5	118.5	122.3	127.3	128.3
Infants' and toddlers' apparel[1]	130.8	130.1	134.9	134.9	133.8	132.0	128.4	128.3	127.7	127.1	126.5	125.3	123.1	124.5	126.9
Footwear	127.6	128.5	130.3	130.1	127.2	126.8	127.3	128.3	131.8	130.4	129.2	128.4	127.4	127.1	128.4
Transportation	142.8	143.6	144.2	143.8	143.4	142.9	143.3	143.6	143.6	143.1	142.4	141.7	140.9	140.1	140.3
Private transportation	140.7	141.3	141.8	141.5	141.1	140.4	141.1	141.4	141.1	140.8	140.1	139.3	138.4	137.4	137.7
New and used motor vehicles[2]	–	–	101.8	101.5	100.9	100.2	99.6	99.4	99.7	99.9	100.0	100.1	100.2	100.0	100.1
New vehicles	144.7	145.5	146.4	145.9	145.4	144.9	144.3	144.0	144.7	145.1	145.3	145.6	145.5	145.6	145.5
Used cars and trucks[1]	158.2	152.6	155.7	155.3	153.3	151.4	149.9	149.7	149.4	149.2	149.5	149.7	149.9	148.8	149.5

28. Continued—Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

[1982–84 = 100, unless otherwise indicated]

Series	Annual average		1997									1998			
	1996	1997	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Motor fuel	106.3	106.2	105.9	105.7	105.9	104.0	107.7	109.2	106.6	104.4	101.7	97.6	94.1	91.0	91.9
Gasoline (all types)	105.9	105.8	105.4	105.2	105.5	103.6	107.6	109.2	106.3	104.0	101.2	97.1	93.6	90.5	91.3
Motor vehicle parts and equipment	101.3	101.0	100.8	100.7	100.8	101.5	101.0	100.8	100.6	100.7	100.8	100.7	100.9	100.7	99.9
Motor vehicle maintenance and repair	159.3	163.7	162.9	163.2	163.7	164.0	164.2	164.5	164.9	165.1	165.7	166.0	166.5	166.7	166.8
Public transportation	179.6	184.2	186.8	185.2	184.0	186.2	181.6	183.5	187.8	183.9	182.5	184.7	187.9	190.2	190.1
Medical care	227.6	234.0	233.2	233.6	233.8	234.2	234.6	234.7	235.2	235.8	236.5	237.4	238.7	239.1	239.9
Medical care commodities	207.8	212.6	212.3	212.9	213.4	213.3	212.5	212.5	212.9	213.1	214.1	214.7	215.4	215.5	217.0
Medical care services	232.1	238.8	237.9	238.2	238.4	238.9	239.5	239.7	240.3	240.8	241.6	242.5	244.0	244.5	245.1
Professional services	209.5	216.7	216.0	216.5	216.8	217.2	217.7	217.8	218.1	218.5	218.9	219.8	221.0	221.8	222.5
Hospital and related services	266.5	274.7	273.4	273.6	273.6	274.4	275.2	275.6	276.4	277.4	278.7	279.6	281.4	281.4	281.7
Recreation[2]	–	–	99.3	99.4	99.8	99.8	100.1	100.0	100.1	100.0	100.0	100.3	100.7	101.0	101.0
Video and audio[1,2]	–	–	98.3	98.9	99.5	100.0	100.0	99.9	99.9	100.3	100.0	100.5	101.2	101.4	101.4
Education and communication[2]	–	–	97.6	97.8	97.9	98.1	98.5	99.7	99.9	100.0	100.0	100.0	99.8	100.0	100.1
Education[2]	–	–	95.5	95.7	95.9	96.2	97.6	99.6	99.8	99.9	100.0	100.3	100.4	100.5	100.7
Educational books and supplies	228.2	240.4	237.4	237.5	239.6	240.1	241.9	243.9	244.7	244.7	245.2	247.5	249.4	250.0	251.2
Tuition, other school fees, and child care	261.0	274.6	269.7	270.3	270.6	271.4	275.7	281.5	282.1	282.3	282.7	283.5	283.5	283.9	284.4
Communication[1,2]	–	–	100.5	100.5	100.7	100.6	99.7	99.8	99.9	100.1	100.0	99.7	99.3	99.5	99.5
Information and information processing[1,2]	–	–	100.5	100.5	100.7	100.7	99.7	99.8	99.9	100.1	100.0	99.6	99.3	99.5	99.5
Telephone services[1,2]	–	–	–	–	–	–	–	–	–	–	100.0	99.9	100.0	100.4	100.5
Information and information processing other than telephone services[1,4]	57.7	51.1	52.4	51.8	50.9	50.1	49.3	49.5	50.1	49.3	48.9	47.7	45.8	44.8	44.1
Personal computers and peripheral equipment[1,2]	–	–	–	–	–	–	–	–	–	–	100.0	96.6	91.1	88.3	86.0
Other goods and services	212.2	221.6	219.8	220.2	219.9	220.3	222.1	224.6	226.1	226.7	226.9	228.2	230.6	229.3	232.3
Tobacco and smoking products	232.5	243.3	242.7	243.4	240.9	241.7	243.0	246.1	249.9	250.5	250.9	253.6	261.1	253.7	263.6
Personal care[1]	150.1	152.6	152.6	152.6	152.7	152.4	152.4	152.6	153.3	154.3	153.9	154.5	155.0	155.5	155.9
Personal care products[1]	145.0	145.1	145.4	145.0	145.0	144.6	144.4	144.7	145.4	147.1	146.1	147.0	147.6	148.2	148.4
Personal care services[1]	156.6	162.5	162.1	162.4	162.7	162.6	162.8	163.0	163.5	163.7	164.1	164.5	164.5	164.9	165.5
Miscellaneous personal services	214.7	225.2	223.7	224.6	225.4	225.6	227.2	227.3	227.7	228.3	228.9	229.8	231.1	231.7	232.5
Commodity and service group:															
Commodities	139.9	141.8	142.2	142.1	141.5	141.0	141.4	142.1	142.3	142.1	141.6	141.4	141.3	141.1	141.6
Food and beverages	153.2	157.2	156.5	156.6	156.6	157.0	157.6	157.8	158.1	158.3	158.5	159.6	159.2	159.4	159.5
Commodities less food and beverages	131.8	132.4	133.4	133.2	132.3	131.3	131.6	132.5	132.7	132.3	131.3	130.5	130.5	130.1	130.9
Nondurables less food and beverages	132.8	134.5	135.6	135.3	134.1	132.9	133.9	135.5	135.7	135.1	133.1	131.5	131.5	131.2	132.3
Apparel	130.9	132.1	135.5	134.7	131.8	129.8	129.4	132.1	133.9	133.6	130.3	128.7	130.4	133.0	134.0
Nondurables less food, beverages, and apparel	138.3	140.4	140.3	140.2	139.9	139.1	140.8	141.9	141.2	140.5	139.3	137.6	136.7	134.8	136.0
Durables	129.2	128.4	129.3	129.2	128.6	128.0	127.4	127.2	127.3	127.3	127.5	127.7	127.7	127.5	127.6
Services	174.1	176.5	175.3	175.5	176.4	177.1	177.4	177.7	178.0	178.1	178.2	178.7	179.1	179.6	179.9
Rent of shelter[3]	159.9	164.7	163.7	163.9	164.5	165.3	165.8	165.8	166.2	166.3	166.6	167.4	168.1	168.6	169.0
Transporatation services	178.3	182.6	182.8	182.4	182.0	182.9	182.1	182.3	184.2	184.0	183.9	184.9	185.3	185.8	185.7
Other services	198.1	206.4	204.6	205.0	205.7	205.9	207.4	209.0	209.4	209.5	209.9	210.5	211.2	211.9	212.4
Special indexes:															
All items less food	154.3	157.6	157.3	157.3	157.5	157.5	157.8	158.4	158.6	158.5	158.1	158.1	158.4	158.5	159.0
All items less shelter	151.0	154.0	153.8	153.8	153.8	153.6	153.9	154.6	154.8	154.7	154.2	154.2	154.1	154.2	154.6
All items less medical care	150.7	154.0	153.6	153.6	153.8	153.8	154.2	154.7	154.9	154.9	154.5	154.7	154.8	154.9	155.3
Commodities less food	132.8	133.6	134.6	134.4	133.5	132.5	132.9	133.7	133.9	133.5	132.5	131.8	131.8	131.5	132.2
Nondurables less food	134.3	136.2	137.1	136.9	135.8	134.7	135.6	137.1	137.3	136.7	135.0	133.5	133.5	133.2	134.2
Nondurables less food and apparel	139.3	141.6	141.4	141.4	141.1	140.4	141.9	142.9	142.4	141.7	140.7	139.2	138.3	136.6	137.8
Nondurables	143.3	146.2	146.4	146.2	145.7	145.3	146.0	147.0	147.2	147.0	146.2	145.9	145.6	145.6	146.2
Services less rent of shelter[3]	162.7	167.6	166.4	166.5	167.7	168.2	168.2	168.8	169.0	169.1	168.8	169.1	169.2	169.6	169.8
Services less medical care services	166.2	171.2	170.0	170.1	171.1	171.8	172.0	172.4	172.7	172.8	172.7	173.2	173.6	174.1	174.4
Energy	109.8	111.1	109.6	109.5	111.8	110.8	112.2	113.5	111.0	110.1	107.7	105.0	102.4	100.8	101.1
All items less energy	160.4	164.1	163.9	163.9	163.8	164.0	164.2	164.6	165.2	165.3	165.2	165.8	166.3	166.7	167.1
All items less food and energy	162.3	166.0	165.9	165.9	165.8	165.9	166.0	166.5	167.1	167.2	167.1	167.5	168.2	168.6	169.1
Commodities less food and energy	140.9	141.9	143.1	142.9	141.8	141.1	140.8	141.5	142.2	142.2	141.5	141.5	142.1	142.3	143.1
Energy commodities	105.9	105.9	105.8	105.5	105.5	103.4	106.7	108.1	105.8	104.0	101.6	97.7	94.3	91.4	92.1
Services less energy	176.8	182.2	181.3	181.4	181.9	182.6	183.0	183.3	183.9	184.0	184.3	185.1	185.8	186.4	186.7

[1] Not seasonally adjusted.

[2] Indexes on a December 1997 = 100 base.

[3] Indexes on a December 1982 = 100 base.

[4] Indexes on a December 1988 = 100 base.

– Data not available.

NOTE: Index applies to a month as a whole, not to any specific date.

29. Consumer Price Index: U.S. city average and available local area data: all items

[1982–84 = 100, unless otherwise indicated]

Area	Pricing schedule[1]	All Urban Consumers							Urban Wage Earners						
		1997			1998				1997			1998			
		Mar.	Apr.	Dec.	Jan.	Feb.	Mar.	Apr.	Mar.	Apr.	Dec.	Jan.	Feb.	Mar.	Apr.
U.S. city average	M	160.0	160.2	161.3	161.6	161.9	162.2	162.5	157.0	157.2	158.2	158.4	158.5	158.7	159.1
Region and area size[2]															
Northeast urban	M	167.3	167.1	168.4	168.8	169.1	169.3	169.5	164.5	164.4	165.5	165.7	165.9	166.0	166.3
Size A—More than 1,500,000	M	168.1	167.7	169.1	169.5	170.1	170.2	170.2	164.2	163.9	165.2	165.4	165.8	165.8	166.0
Size B/C—50,000 to 1,500,000[3]	M	100.5	100.7	101.3	101.6	101.4	101.7	102.1	100.4	100.6	101.1	101.3	101.1	101.3	101.5
Midwest urban[4]	M	155.9	156.1	157.3	157.6	158.0	158.4	159.0	152.4	152.6	153.7	153.9	154.2	154.4	155.0
Size A—More than 1,500,000	M	156.6	156.9	158.1	158.5	158.9	159.5	160.1	152.3	152.6	153.6	153.9	154.2	154.7	155.4
Size B/C—50,000 to 1,500,000[3]	M	100.2	100.3	101.0	101.2	101.6	101.6	101.9	100.0	100.1	101.0	101.1	101.4	101.3	101.7
Size D—Nonmetropolitan (less than 50,000)	M	152.1	152.1	153.0	152.9	152.7	152.9	153.2	150.1	150.0	151.0	150.9	150.8	150.7	150.9
South urban	M	156.5	156.7	157.3	157.6	157.8	158.2	158.5	154.8	155.1	155.6	155.8	155.7	156.0	156.4
Size A—More than 1,500,000	M	155.4	155.7	156.3	156.6	156.7	157.2	157.6	153.4	153.6	154.2	154.4	154.3	154.7	155.1
Size B/C—50,000 to 1,500,000[3]	M	100.9	101.1	101.3	101.5	101.6	101.8	102.0	100.7	100.9	101.1	101.2	101.1	101.3	101.5
Size D—Nonmetropolitan (less than 50,000)	M	156.0	156.1	157.0	157.5	157.9	158.4	159.1	156.1	156.3	157.5	157.6	158.0	158.2	159.1
West urban	M	160.8	161.1	162.8	163.0	163.2	163.3	163.6	157.4	157.8	159.2	159.4	159.4	159.4	159.6
Size A—More than 1,500,000	M	160.9	161.2	163.1	163.3	163.6	163.8	164.2	155.9	156.2	157.9	158.0	158.0	158.1	158.5
Size B/C—50,000 to 1,500,000[3]	M	101.2	101.4	102.0	102.3	102.3	102.3	102.2	101.3	101.4	101.9	102.2	102.2	102.1	102.0
Size classes:															
A[5]	M	144.4	144.5	145.7	146.0	146.4	146.6	147.0	143.2	143.4	144.4	144.6	144.8	145.0	145.4
B/C[3]	M	100.7	100.9	101.4	101.6	101.7	101.8	102.0	100.6	100.7	101.2	101.3	101.3	101.4	101.6
D	M	156.4	156.5	157.5	157.7	157.8	158.1	158.5	155.4	155.6	156.7	156.7	156.8	156.8	157.3
Selected local areas[6]															
Chicago–Gary–Kenosha, IL–IN–WI	M	161.0	160.9	162.8	162.8	163.1	164.1	164.8	155.6	155.3	157.3	157.3	157.4	158.3	159.0
Los Angeles–Riverside–Orange County, CA	M	159.8	159.9	161.2	161.0	161.1	161.4	161.8	154.2	154.3	155.3	155.1	155.0	155.1	155.6
New York, NY–Northern NJ–Long Island, NY–NJ–CT–PA	M	170.7	170.2	171.9	172.1	172.7	173.0	173.0	166.6	166.1	167.7	167.7	168.2	168.2	168.5
Boston–Brockton–Nashua, MA–NH–ME–CT	1	168.1	–	–	171.2	–	171.3	–	166.8	–	–	169.3	–	169.3	–
Cleveland–Akron, OH	1	155.4	–	–	158.2	–	158.6	–	147.5	–	–	150.0	–	150.1	–
Dallas–Ft Worth, TX	1	–	150.6	152.5	152.1	–	153.0	–	–	150.4	152.7	152.2	–	152.8	–
Washington–Baltimore, DC–MD–VA–WV[7]	1	100.8	–	–	101.0	–	101.6	–	100.8	–	–	100.8	–	101.3	–
Atlanta, GA	2	–	–	159.4	–	159.5	–	160.8	–	–	156.8	–	156.6	–	157.7
Detroit–Ann Arbor–Flint, MI	2	–	156.0	157.1	–	158.5	–	159.1	–	151.0	151.7	–	152.9	–	153.5
Houston–Galveston–Brazoria, TX	2	–	145.2	145.6	–	146.1	–	146.3	–	144.1	144.5	–	144.7	–	144.8
Miami–Ft. Lauderdale, FL	2	158.5	–	159.3	–	160.2	–	160.2	156.2	–	156.8	–	157.3	–	157.4
Philadelphia–Wilmington–Atlantic City, PA–NJ–DE–MD	2	166.1	166.0	166.4	–	167.0	–	167.1	165.3	165.1	165.7	–	166.1	–	166.5
San Francisco–Oakland–San Jose, CA	2	159.2	159.6	162.6	–	163.2	–	164.6	156.2	156.7	159.4	–	159.6	–	160.8
Seattle–Tacoma–Bremerton, WA	2	–	–	165.0	–	166.5	–	166.4	–	–	160.6	–	162.2	–	161.9

[1] Foods, fuels, and several other items priced every month in all areas; most other goods and services priced as indicated:

M—Every month.

1—January, March, May, July, September, and November.

2—February, April, June, August, October, and December.

[2] Regions defined as the four Census regions.

[3] Indexes on a December 1996 = 100 base.

[4] The "North Central" region has been renamed the "Midwest" region by the Census Bureau. It is composed of the same geographic entities.

[5] Indexes on a December 1986 = 100 base.

[6] In addition, the following metropolitan areas are published semiannually and appear in tables 34 and 39 of the January and July issues of the *CPI Detailed Report*: Anchorage, AK; Cincinnati–Hamilton, OH–KY–IN; Denver–Boulder–Greeley, CO; Honolulu, HI; Kansas City, MO–KS; Milwaukee–Racine, WI; Minneapolis–St. Paul, MN–WI; Pittsburgh, PA; Portland–Salem, OR–WA; St Louis, MO–IL; San Diego, CA; Tampa–St. Petersburg–Clearwater, FL.

[7] Indexes on a November 1996 = 100 base.

– Data not available.

NOTE: Local area CPI indexes are byproducts of the national CPI program. Each local index has a smaller sample size and is, therefore, subject to substantially more sampling and other measurement error. As a result, local area indexes show greater volatility than the national index, although their long-term trends are similar. Therefore, the Bureau of Labor Statistics strongly urges users to consider adopting the national average CPI for use in their escalator clauses.

Index applies to a month as a whole, not to any specific date.

30. Annual data: Consumer Price Index, U.S. city average, all items and major groups

[1982–84 = 100]

Series	1989	1990	1991	1992	1993	1994	1995	1996	1997
Consumer Price Index for All Urban Consumers:									
All items:									
Index	124.0	130.7	136.2	140.3	144.5	148.2	152.4	156.9	160.5
Percent change	4.8	5.4	4.2	3.0	3.0	2.6	2.8	3.0	2.3
Food and beverages:									
Index	124.9	132.1	136.8	138.7	141.6	144.9	148.9	153.7	157.7
Percent change	5.7	5.8	3.6	1.4	2.1	2.3	2.8	3.2	2.6
Housing:									
Index	123.0	128.5	133.6	137.5	141.2	144.8	148.5	152.8	156.8
Percent change	3.8	4.5	4.0	2.9	2.7	2.5	2.6	2.9	2.6
Apparel:									
Index	118.6	124.1	128.7	131.9	133.7	133.4	132.0	131.7	132.9
Percent change	2.8	4.6	3.7	2.5	1.4	–.2	–1.0	–0.2	.9
Transportation:									
Index	114.1	120.5	123.8	126.5	130.4	134.3	139.1	143.0	144.3
Percent change	5.0	5.6	2.7	2.2	3.1	3.0	3.6	2.8	0.9
Medical care:									
Index	149.3	162.8	177.0	190.1	201.4	211.0	220.5	228.2	234.6
Percent change	7.7	9.0	8.7	7.4	5.9	4.8	4.5	3.5	2.8
Other goods and services:									
Index	147.7	159.0	171.6	183.3	192.9	198.5	206.9	215.4	224.8
Percent change	7.8	7.7	7.9	6.8	5.2	2.9	4.2	4.1	4.4
Consumer Price Index for Urban Wage Earners and Clerical Workers:									
All items:									
Index	122.6	129.0	134.3	138.2	142.1	145.6	149.8	154.1	157.6
Percent change	4.8	5.2	4.1	2.9	2.8	2.5	2.9	2.9	2.3

31. Producer Price Indexes, by stage of processing

[1982 = 100]

Grouping	Annual average		1997									1998			
	1996	1997	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Finished goods	131.3	131.8	131.6	131.6	131.6	131.3	131.7	131.8	132.3	131.7	131.1	130.2	130.1	129.7	130.0
Finished consumer goods	129.5	130.2	129.8	130.0	130.0	129.7	130.3	130.5	130.7	130.1	129.4	128.2	128.1	127.6	127.9
Finished consumer foods	133.6	134.5	134.3	135.2	134.0	134.0	134.9	134.7	135.1	134.6	134.4	132.8	133.6	133.3	133.6
Finished consumer goods excluding foods	127.6	128.2	127.7	127.6	128.1	127.6	128.1	128.6	128.7	128.0	127.2	126.0	125.5	124.9	125.3
Nondurable goods less food	123.3	124.3	123.2	123.5	124.4	124.1	124.8	125.8	124.6	123.9	123.0	121.3	120.6	119.9	120.5
Durable goods	134.2	133.7	134.5	133.6	133.4	132.4	132.3	131.4	134.7	134.1	133.4	133.6	133.5	133.3	133.2
Capital equipment	138.3	138.2	138.6	138.1	138.1	137.8	137.7	137.2	138.5	138.3	137.9	138.0	137.9	137.9	137.8
Intermediate materials, supplies, and components	125.7	125.6	125.3	125.4	125.8	125.5	125.8	126.0	125.5	125.5	125.0	124.2	124.0	123.3	123.3
Materials and components for manufacturing	128.6	128.3	128.4	128.4	128.3	128.2	128.3	128.3	128.0	128.2	128.0	127.5	127.5	127.0	127.0
Materials for food manufacturing	125.3	123.2	123.8	123.9	122.7	122.3	122.9	123.1	122.4	124.2	123.2	119.7	122.1	121.1	121.8
Materials for nondurable manufacturing	130.5	129.6	129.0	129.1	129.0	129.3	129.7	129.8	129.9	130.0	130.2	130.1	129.5	128.7	128.4
Materials for durable manufacturing	131.3	132.8	133.4	133.4	133.7	133.2	133.2	133.0	132.3	132.1	131.4	130.5	130.7	130.0	130.0
Components for manufacturing	126.9	126.4	126.6	126.5	126.4	126.4	126.2	126.2	126.0	126.0	126.0	126.0	126.0	126.0	125.9
Materials and components for construction	143.6	146.5	146.8	147.2	147.0	147.2	147.1	146.8	146.4	146.6	146.4	146.4	146.7	146.6	147.0
Processed fuels and lubricants	90.0	89.3	87.0	87.2	89.8	88.9	90.0	91.0	89.1	88.3	86.1	83.3	82.0	79.8	80.1
Containers	141.1	136.0	135.1	134.6	134.2	134.1	133.4	135.4	136.4	138.1	139.9	140.7	140.8	142.1	141.6
Supplies	135.9	135.9	136.0	136.2	136.0	135.9	135.8	136.2	135.8	136.1	136.0	135.5	135.2	135.0	134.8
Crude materials for further processing	113.8	111.1	107.9	110.4	107.1	107.1	107.5	108.5	112.7	114.7	107.8	102.7	100.4	99.2	100.0
Foodstuffs and feedstuffs	121.5	112.2	116.7	117.4	111.3	112.0	111.6	110.6	110.1	110.4	109.0	105.4	105.1	106.6	106.2
Crude nonfood materials	104.5	106.4	98.1	101.8	100.5	99.9	100.9	103.2	110.3	113.4	103.2	97.1	93.5	90.5	92.1
Special groupings:															
Finished goods, excluding foods	130.5	130.9	130.7	130.5	130.9	130.4	130.7	130.9	131.3	130.8	130.1	129.3	129.0	128.6	128.8
Finished energy goods	83.2	83.4	81.8	82.2	83.6	83.1	84.2	85.3	83.2	81.9	80.2	77.4	75.8	74.4	74.7
Finished goods less energy	139.6	140.2	140.3	140.3	139.9	139.7	139.9	139.7	140.9	140.6	140.3	139.9	140.2	140.1	140.3
Finished consumer goods less energy	140.1	141.0	141.0	141.1	140.6	140.3	140.7	140.6	141.8	141.4	141.2	140.6	141.1	140.9	141.3
Finished goods less food and energy	142.0	142.4	142.7	142.3	142.2	141.9	141.8	141.6	143.0	142.8	142.6	142.7	142.8	142.7	143.0
Finished consumer goods less food and energy	144.3	145.1	145.2	144.9	144.8	144.4	144.4	144.4	146.0	145.8	145.5	145.6	145.8	145.8	146.2
Consumer nondurable goods less food and energy	151.4	153.4	153.0	153.0	153.1	153.2	153.3	154.2	154.3	154.4	154.5	154.4	154.9	155.1	156.0
Intermediate materials less foods and feeds	125.6	125.7	125.2	125.3	125.7	125.6	125.8	126.1	125.6	125.6	125.1	124.5	124.3	123.6	123.7
Intermediate foods and feeds	128.1	125.4	127.5	128.3	126.4	124.6	124.6	126.0	122.6	124.3	123.5	118.8	118.9	117.1	116.0
Intermediate energy goods	89.8	89.0	86.7	87.0	89.5	88.6	89.7	90.7	88.8	88.0	85.9	83.0	81.8	79.5	80.0
Intermediate goods less energy	133.6	133.7	133.8	133.9	133.7	133.7	133.7	133.8	133.5	133.8	133.7	133.3	133.3	133.3	132.9
Intermediate materials less foods and energy	134.0	134.2	134.2	134.2	134.2	134.2	134.2	134.3	134.2	134.4	134.3	134.3	134.2	134.0	134.1
Crude energy materials	85.0	87.3	76.4	80.8	79.2	79.1	79.7	83.2	92.8	97.1	84.3	77.3	72.3	69.2	71.6
Crude materials less energy	130.0	123.5	126.7	127.5	123.1	123.1	123.3	122.2	121.5	121.6	120.1	116.8	116.8	117.3	116.7
Crude nonfood materials less energy	155.8	156.5	156.4	157.8	157.4	155.6	157.5	156.0	155.0	154.3	152.5	150.1	151.0	148.7	147.4

32. Producer Price Indexes for the net output of major industry groups

[December 1984 = 100, unless otherwise indicated]

SIC	Industry	Annual average		1997									1998			
		1996	1997	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
–	**Total mining industries**	84.4	86.1	77.6	80.8	79.9	79.5	80.2	82.9	90.2	93.2	83.2	77.9	74.5	72.0	73.6
10	Metal mining	92.1	85.8	87.7	89.7	89.4	85.7	86.4	84.0	83.2	78.9	74.8	73.1	75.8	74.6	76.0
12	Coal mining (12/85 = 100)	91.4	92.2	95.0	91.7	92.6	91.5	91.6	91.9	91.3	91.0	93.2	92.1	89.7	90.3	88.6
13	Oil and gas extraction (12/85 = 100)	84.8	87.5	75.5	80.2	78.9	78.8	79.7	83.5	93.4	98.0	84.5	77.6	73.2	69.7	72.0
14	Mining and quarrying of nonmetallic minerals, except fuels	127.1	128.8	128.1	128.3	128.9	129.2	129.2	129.3	129.6	129.7	129.9	130.3	131.0	131.3	132.0
–	**Total manufacturing industries**	127.1	127.5	127.7	127.6	127.2	126.9	127.4	127.3	127.6	127.5	127.0	126.3	126.2	125.7	126.0
20	Food and kindred products	127.1	127.9	128.3	128.9	128.3	128.0	128.6	127.9	127.5	127.5	127.1	125.7	126.1	125.5	125.4
21	Tobacco manufactures	199.1	210.8	208.4	209.2	209.6	209.4	209.4	219.4	219.4	219.3	219.3	219.3	223.8	223.8	230.9
22	Textile mill products	118.2	118.8	118.2	118.5	118.6	118.8	118.8	118.9	119.1	119.0	119.2	118.7	119.6	119.6	119.6
23	Apparel and other finished products made from fabrics and similar materials	122.3	123.4	122.9	123.3	123.4	123.4	123.5	123.7	123.4	124.2	124.2	124.1	124.4	124.5	124.5
24	Lumber and wood products, except furniture	153.5	158.9	159.9	160.7	159.8	160.1	159.6	158.9	157.3	158.2	157.9	157.5	158.6	157.9	158.4
25	Furniture and fixtures	136.2	138.2	138.0	138.2	138.2	138.5	138.3	138.6	138.6	138.9	138.9	139.2	139.6	139.7	139.3
26	Paper and allied products	138.6	133.5	131.5	131.5	131.7	132.0	132.8	134.1	134.6	135.9	137.3	137.7	137.3	137.8	137.2
27	Printing, publishing, and allied industries	165.6	169.1	168.5	168.2	168.4	168.7	168.9	169.2	170.7	171.1	171.3	172.5	173.1	173.0	173.8
28	Chemicals and allied products	145.8	147.1	147.0	147.0	147.0	147.1	147.2	147.1	147.3	147.3	147.3	147.6	147.4	146.9	146.8
29	Petroleum refining and related products	87.4	85.6	85.8	85.5	83.6	81.3	85.3	86.1	84.8	83.6	79.1	73.7	70.6	65.9	68.1
30	Rubber and miscellaneous plastics products	123.1	122.8	122.8	122.9	122.9	123.0	123.1	122.9	122.7	122.8	122.8	122.6	122.6	122.6	122.5
31	Leather and leather products	134.7	137.1	137.4	136.9	136.2	136.9	136.9	137.0	137.5	137.9	137.4	137.7	137.5	137.4	137.3
32	Stone, clay, glass, and concrete products	125.8	127.4	127.5	127.6	127.4	127.4	127.5	127.5	127.8	127.8	127.7	127.9	128.0	128.0	128.5
33	Primary metal industries	123.7	124.7	125.0	125.0	125.4	125.2	125.2	125.2	124.8	124.5	123.9	123.4	123.1	122.9	122.5
34	Fabricated metal products, except machinery and transportation transportation equipment	126.2	127.6	127.2	127.4	127.5	127.7	127.9	128.0	128.1	128.2	128.1	128.3	128.5	128.6	128.6
35	Machinery, except electrical	119.2	118.5	119.1	118.5	118.3	118.4	118.3	118.2	118.1	118.0	118.0	118.2	118.0	117.9	117.9
36	Electrical and electronic machinery, equipment, and supplies	113.2	111.6	112.0	111.8	111.8	111.7	111.1	111.1	110.8	110.8	110.8	110.7	110.6	110.6	110.4
37	Transportation	134.2	134.1	134.8	133.9	133.8	132.8	132.8	131.8	135.0	134.4	133.7	133.8	133.8	133.8	133.9
38	Measuring and controlling instruments; photographic, medical, and optical goods; watches and clocks	125.0	125.6	125.7	125.7	125.3	125.7	125.8	125.8	125.7	125.8	125.8	126.0	126.4	126.3	126.2
39	Miscellaneous manufacturing industries (12/85 = 100)	127.8	129.0	129.1	129.1	129.1	129.0	129.1	129.2	129.4	129.1	129.1	129.5	129.7	129.6	129.5
	Service industries:															
42	Motor freight transportation and warehousing (06/93 = 100)	106.3	108.9	108.8	108.8	109.0	109.1	109.3	109.4	109.3	109.0	109.4	110.4	110.8	110.6	111.0
43	U.S. Postal Service (06/89 = 100)	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3
44	Water transportation (12/92 = 100)	103.7	104.2	104.2	104.3	104.8	104.4	104.7	103.8	104.6	104.1	103.3	102.9	101.9	102.3	101.6
45	Transportation by air (12/92 = 100)	121.1	125.3	125.1	125.1	126.2	126.5	125.4	122.5	123.7	123.4	123.3	122.5	123.7	124.8	125.1
46	Pipelines, except natural gas (12/92 = 100)	104.6	98.8	98.8	98.9	98.9	98.7	98.7	98.7	98.7	98.7	98.7	99.3	99.3	99.3	99.4

33. Annual data: Producer Price Indexes, by stage of processing

[1982 = 100]

Index	1989	1990	1991	1992	1993	1994	1995	1996	1997
Finished goods									
Total	113.6	119.2	121.7	123.2	124.7	125.5	127.9	131.3	131.8
Foods	118.7	124.4	124.1	123.3	125.7	126.8	129.0	133.6	134.5
Energy	65.7	75.0	78.1	77.8	78.0	77.0	78.1	83.2	83.4
Other	122.1	126.6	131.1	134.2	135.8	137.1	140.0	142.0	142.4
Intermediate materials, supplies, and components									
Total	112.0	114.5	114.4	114.7	116.2	118.5	124.9	125.7	125.6
Foods	112.7	117.9	115.3	113.9	115.6	118.5	119.5	125.3	123.2
Energy	76.1	85.5	85.1	84.3	84.6	83.0	84.1	89.8	89.0
Other	120.2	120.9	121.4	122.0	123.8	127.1	135.2	134.0	134.2
Crude materials for further processing									
Total	103.1	108.9	101.2	100.4	102.4	101.8	102.7	113.8	111.1
Foods	111.2	113.1	105.5	105.1	108.4	106.5	105.8	121.5	112.2
Energy	75.9	85.9	80.4	78.8	76.7	72.1	69.4	85.0	87.3
Other	95.8	107.3	97.5	94.2	94.1	97.0	105.8	105.7	103.5

34. U.S. export price indexes by Standard International Trade Classification

[1995 = 100, unless otherwise indicated]

SITC Rev. 3	Industry	1997									1998			
		Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
0	**Food and live animals**	103.1	101.2	98.5	97.8	99.7	99.5	98.5	97.6	96.7	94.9	92.5	92.5	91.2
01	Meat and meat preparations	96.7	95.7	95.3	95.7	96.2	95.2	95.2	96.1	94.6	91.4	90.9	92.1	92.3
04	Cereals and cereal preparations	104.5	99.7	92.3	89.9	93.2	95.0	93.5	94.9	94.4	88.9	91.5	90.4	86.2
05	Vegetables, fruit, and nuts, prepared fresh or dry	100.1	100.7	101.6	104.3	103.3	97.6	98.2	93.4	92.0	99.8	88.6	91.7	94.8
2	**Crude materials, inedible, except fuels**	92.6	93.0	93.4	93.6	92.7	91.6	88.7	88.9	87.8	84.7	85.1	84.2	83.4
21	Hides, skins, and furskins, raw	113.8	110.0	100.8	96.0	98.3	100.1	101.6	103.6	102.6	80.9	83.3	90.1	87.9
22	Oilseeds and oleaginous fruits	134.0	136.1	134.6	128.6	120.5	120.2	108.3	118.2	116.5	110.8	113.1	108.4	105.4
24	Cork and wood	94.2	94.2	93.2	92.8	92.4	90.9	88.6	85.8	85.6	85.8	85.2	84.1	84.0
25	Pulp and waste paper	58.9	60.5	65.9	69.1	71.4	68.2	69.4	68.3	66.8	63.8	65.0	65.3	64.6
26	Textile fibers and their waste	83.5	83.3	83.4	84.2	84.4	83.9	83.4	81.2	80.0	78.2	78.0	77.6	76.4
27	Crude fertilizers and crude minerals	96.9	97.3	97.8	97.9	97.9	97.9	97.9	97.8	97.4	97.5	97.2	97.1	97.1
28	Metalliferous ores and metal scrap	89.4	89.6	91.7	95.7	96.3	94.4	90.0	85.9	83.9	82.1	81.4	79.7	80.9
3	**Mineral fuels, lubricants, and related products**	110.7	110.7	110.9	110.9	111.2	111.8	112.6	112.0	112.8	109.4	108.6	106.5	104.6
32	Coal, coke, and briquettes	102.5	102.4	102.0	101.6	101.6	101.9	102.2	101.8	101.3	101.0	101.3	101.3	100.0
33	Petroleum, petroleum products, and related materials	119.9	120.0	119.4	120.9	121.3	121.8	121.3	120.1	119.0	116.0	114.3	110.5	108.6
4	**Animal and vegetable oils, fats, and waxes**	93.4	93.6	94.7	93.3	93.3	94.9	97.9	106.8	106.5	104.5	101.3	100.8	101.4
5	**Chemicals and related products, n.e.s.**	96.6	96.7	96.5	96.4	95.5	95.5	95.4	95.2	94.9	94.9	94.5	93.5	93.2
54	Medicinal and pharmaceutical products	101.6	101.5	101.5	101.1	101.1	101.2	100.8	100.9	100.9	101.9	101.6	102.3	101.6
55	Essential oils; polishing and cleaning preparations	102.2	102.8	102.9	103.1	102.6	103.7	103.6	102.1	101.9	101.3	102.0	101.5	101.2
57	Plastics in primary forms (12/92 = 100)	97.8	97.6	97.1	95.9	94.0	93.7	93.9	93.6	93.1	92.9	92.4	91.6	90.6
58	Plastics in nonprimary forms (12/92 = 100)	98.5	99.3	99.1	99.0	99.0	98.9	98.7	98.5	98.7	100.3	100.2	99.7	99.8
59	Chemical materials and products, n.e.s.	104.0	104.2	103.9	103.9	104.0	103.6	103.4	103.0	101.9	101.9	101.9	100.6	101.7
6	**Manufactured goods classified chiefly by materials**	97.8	97.7	98.2	98.5	98.6	98.7	98.7	98.9	98.5	98.1	98.5	98.4	98.3
62	Rubber manufactures, n.e.s.	103.0	103.1	103.2	103.1	102.2	101.9	102.2	102.1	102.1	101.8	101.8	102.1	102.0
64	Paper, paperboard, and articles of paper, pulp, and paperboard	82.3	82.9	83.5	84.4	85.3	85.0	85.3	85.2	85.1	84.7	85.0	84.7	84.6
66	Nonmetallic mineral manufactures, n.e.s.	104.0	104.1	104.3	104.5	104.6	106.1	106.1	106.3	107.1	106.7	107.3	107.0	10.7
68	Nonferrous metals	92.0	91.7	93.4	92.6	93.3	93.2	91.9	93.4	91.0	89.5	91.3	91.3	91.6
7	**Machinery and transport equipment**	100.6	100.4	100.6	100.5	100.6	100.1	100.0	100.1	99.8	99.6	99.6	99.4	99.2
71	Power generating machinery and equipment	105.9	106.0	106.0	105.9	106.2	106.2	106.2	106.3	106.2	106.8	106.7	106.8	106.9
72	Machinery specialized for particular industries	103.8	104.3	104.2	104.1	104.4	104.5	104.5	104.5	104.9	104.6	105.1	105.0	104.8
74	General industrial machines and parts, n.e.s., and machine parts	104.6	104.7	105.2	105.0	105.3	105.2	105.4	105.4	105.4	105.6	105.6	105.8	105.8
75	Computer equipment and office machines	86.3	85.1	84.7	84.0	84.0	83.7	83.0	82.7	81.6	80.8	80.5	79.8	79.2
76	Telecommunications and sound recording and reproducing apparatus and equipment	99.9	99.6	99.6	99.7	99.7	99.2	99.5	99.4	98.7	98.6	98.4	98.7	98.4
77	Electrical machinery and equipment	96.9	96.8	96.5	96.5	96.7	95.1	94.8	94.9	94.4	94.0	93.6	93.5	92.9
78	Road vehicles	101.9	101.7	101.8	102.0	101.9	101.7	101.8	101.9	102.0	102.0	102.0	101.9	101.9
87	**Professional, scientific, and controlling instruments and apparatus**	103.1	103.3	103.4	103.5	103.5	103.4	103.3	103.3	103.5	103.5	103.6	103.6	103.6

35. U.S. import price indexes by Standard International Trade Classification

[1995 = 100, unless otherwise indicated]

SITC Rev. 3	Industry	1997									1998			
		Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
0	**Food and live animals**	99.5	102.1	103.7	100.5	100.9	101.3	100.4	99.4	99.6	99.2	97.5	97.9	98.2
01	Meat and meat preparations	104.7	103.5	101.9	101.9	104.2	103.9	102.7	102.7	104.2	101.3	101.3	101.2	101.7
03	Fish and crustaceans, mollusks, and other aquatic invertebrates	100.4	102.1	103.6	104.4	104.6	104.5	107.4	107.3	105.6	105.4	106.4	107.1	107.5
05	Vegetables, fruit, and nuts, prepared fresh or dry	101.5	101.0	101.7	101.2	103.2	103.4	103.1	103.8	102.5	102.9	93.8	95.7	95.9
07	Coffee, tea, cocoa, spices, and manufactures thereof	98.1	107.8	118.4	99.6	97.5	100.0	92.1	86.2	92.1	94.7	97.1	94.0	93.1
1	**Beverages and tobacco**	107.2	107.0	107.5	107.7	107.7	107.8	107.9	108.4	108.6	109.0	109.5	109.2	109.2
11	Beverages	103.6	103.5	104.0	104.2	104.2	104.3	104.4	105.1	105.2	105.4	105.9	105.8	105.8
2	**Crude materials, inedible, except fuels**	97.6	99.8	97.4	97.3	96.8	96.6	94.8	94.0	93.5	91.4	95.1	91.1	89.8
23	Crude rubber (including synthetic and reclaimed)	84.8	82.1	83.9	77.7	77.2	74.5	72.4	71.2	69.1	62.4	65.6	63.6	59.5
24	Cork and wood	124.9	126.9	122.5	123.3	120.9	121.2	113.1	114.0	113.1	109.7	110.0	110.6	110.8
25	Pulp and waste paper	63.8	64.4	65.8	66.5	67.9	68.2	69.0	69.2	68.7	68.3	64.5	64.2	63.7
28	Metalliferous ores and metal scrap	106.0	105.6	105.8	104.6	104.7	104.5	103.7	102.5	102.3	100.3	100.0	100.4	100.6
29	Crude animal and vegetable materials, n.e.s.	94.3	118.1	97.3	102.1	101.8	103.1	113.2	104.8	107.0	108.6	158.2	110.0	102.0
3	**Mineral fuels, lubricants, and related products**	105.3	106.6	104.6	104.4	106.2	107.0	113.1	111.8	103.3	93.5	87.2	80.2	81.8
33	Petroleum, petroleum products, and related materials	104.8	106.4	104.0	103.0	105.1	105.5	111.5	107.8	100.1	89.7	83.7	76.0	78.1
34	Gas, natural and manufactured	113.7	112.0	113.3	119.8	119.7	123.7	132.0	149.7	133.4	127.4	117.3	114.8	112.4
5	**Chemicals and related products, n.e.s.**	96.6	96.5	96.4	96.2	96.4	96.2	95.6	95.2	95.2	94.2	93.8	93.1	92.8
52	Inorganic chemicals	101.1	100.8	99.0	97.9	98.6	99.7	99.7	99.0	97.3	94.1	94.0	94.5	95.6
53	Dying, tanning, and coloring materials	97.1	97.1	97.9	97.7	95.4	94.0	94.2	96.3	96.9	95.3	94.9	94.9	94.6
54	Medicinal and pharmaceutical products	96.0	95.4	96.3	96.3	96.2	95.7	96.2	96.2	96.8	96.4	95.8	95.8	95.5
55	Essential oils; polishing and cleaning preparations	98.8	98.7	97.0	96.9	97.8	96.9	97.4	96.6	97.5	96.2	96.3	94.4	94.1
57	Plastics in primary forms (12/92 = 100)	89.6	90.9	91.6	91.7	91.9	92.6	92.7	91.6	92.0	92.4	96.5	94.4	94.1
58	Plastics in nonprimary forms (12/92 = 100)	86.2	85.8	88.6	88.7	87.4	86.9	85.9	82.9	82.8	82.6	82.6	81.5	81.9
59	Chemical materials and products, n.e.s.	104.2	104.2	103.5	103.2	103.3	103.2	102.8	102.8	103.1	102.9	101.4	101.7	101.2
6	**Manufactured goods classified chiefly by materials**	95.9	96.4	96.8	96.6	96.5	96.8	96.7	96.6	96.0	95.2	94.8	94.6	94.8
62	Rubber manufactures, n.e.s.	97.5	97.4	97.6	96.7	95.8	95.1	95.3	95.4	95.5	95.2	95.2	95.1	95.2
64	Paper, paperboard, and articles of paper, pulp, and paperboard	85.6	87.9	87.5	87.6	88.0	88.8	88.9	89.7	88.5	87.6	87.5	87.9	88.8
66	Nonmetallic mineral manufactures, n.e.s.	102.8	103.2	102.6	103.0	102.5	102.1	102.2	102.2	101.7	101.3	100.7	100.6	101.2
68	Nonferrous metals	90.6	91.8	95.1	94.0	94.6	96.9	95.3	93.4	92.1	90.5	90.6	91.2	91.8
69	Manufactures of metals, n.e.s.	99.0	98.9	99.0	98.8	98.3	98.1	98.5	98.3	98.5	97.9	97.5	97.3	96.9
7	**Machinery and transport equipment**	96.0	95.5	95.7	95.4	95.0	94.8	94.5	94.3	94.0	93.6	93.3	93.1	92.7
72	Machinery specialized for particular industries	99.2	98.9	99.3	99.3	98.6	98.4	98.6	99.0	99.1	98.7	98.1	98.2	97.6
74	General industrial machines and parts, n.e.s., and machine parts	98.1	97.9	98.3	98.2	97.6	97.2	97.4	97.3	97.3	97.1	96.5	96.5	96.0
75	Computer equipment and office machines	83.2	81.9	81.2	80.2	78.9	78.2	77.1	76.7	76.8	75.5	74.4	73.6	72.8
76	Telecommunications and sound recording and reproducing apparatus and equipment	93.7	93.1	93.4	93.3	92.9	92.6	92.3	91.9	91.7	91.4	90.9	90.7	90.6
77	Electrical machinery and equipment	90.1	89.8	90.2	89.7	89.6	89.2	88.6	87.7	86.6	86.2	86.2	86.0	85.6
78	Road vehicles	100.6	100.4	100.8	100.9	101.1	101.3	101.6	101.6	101.5	101.4	101.3	101.5	101.5
85	Footwear	101.0	100.9	101.1	101.2	101.1	100.8	101.0	101.0	101.2	101.2	101.1	100.7	100.6
88	Photographic apparatus, equipment, and supplies, and optical goods, n.e.s.	95.6	94.3	94.4	95.1	94.4	93.6	93.4	92.6	93.1	92.3	92.1	91.7	91.6

36. U.S. export price indexes by end-use category

[1995 = 100]

Category	1997									1998			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
ALL COMMODITIES	99.7	99.4	99.3	99.3	99.3	99.0	98.6	98.6	98.2	97.5	97.2	96.9	96.6
Foods, feeds, and beverages	105.8	104.6	102.3	101.2	101.8	101.8	99.8	100.2	99.3	96.9	95.0	94.4	93.2
Agricultural foods, feeds, and beverages	107.4	106.3	103.8	102.4	102.5	102.2	100.1	100.7	100.0	97.6	96.2	95.3	94.0
Nonagricultural (fish, beverages) food products	89.4	88.0	87.6	89.0	96.2	98.5	98.0	95.7	94.1	90.9	83.8	86.2	85.8
Industrial supplies and materials	95.3	95.2	95.5	95.8	95.4	95.1	94.8	94.5	93.7	92.3	92.1	91.4	91.0
Agricultural industrial supplies and materials	94.1	92.6	91.6	92.2	92.3	93.0	93.1	94.0	92.7	88.3	87.1	88.0	87.1
Fuels and lubricants	110.2	110.0	110.0	110.1	110.4	110.9	111.3	110.7	110.2	107.1	106.2	103.4	102.1
Nonagricultural supplies and materials, excluding fuel and building materials	92.8	92.8	93.3	93.6	93.2	92.8	92.4	92.3	91.4	90.4	90.3	89.7	89.4
Selected building materials	95.5	95.4	94.8	94.7	93.8	92.8	91.2	89.3	89.3	89.1	88.5	88.0	87.7
Capital goods	100.3	100.1	100.2	100.0	100.1	99.5	99.3	99.3	98.9	98.8	98.8	98.7	98.4
Electric and electrical generating equipment	100.7	100.6	101.1	101.2	102.2	101.8	101.9	102.2	102.2	101.7	101.1	101.3	100.8
Nonelectrical machinery	98.2	97.9	97.7	97.5	97.5	96.7	96.5	96.4	95.9	95.8	95.8	95.7	95.4
Automotive vehicles, parts, and engines	102.2	102.1	102.1	102.3	102.3	102.1	102.2	102.3	102.3	102.3	102.3	102.3	102.3
Consumer goods, excluding automotive	101.8	101.9	102.0	102.2	102.2	102.6	102.6	102.6	102.7	102.5	102.5	102.5	102.2
Nondurables, manufactured	101.1	101.2	101.5	101.7	101.7	102.3	102.1	102.0	102.1	102.2	102.2	102.3	102.1
Durables, manufactured	102.0	102.1	102.0	102.0	102.1	101.9	102.2	102.1	102.0	101.7	101.6	101.3	101.0
Agricultural commodities	104.7	103.4	101.3	100.2	100.3	100.2	98.4	99.1	98.3	95.6	94.2	93.6	92.4
Nonagricultural commodities	99.0	99.0	99.1	99.1	99.1	98.8	98.6	98.5	98.1	97.7	97.6	97.3	97.0

37. U.S. import price indexes by end-use category

[1995 = 100]

Category	1997									1998			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
ALL COMMODITIES	98.3	98.3	98.2	98.0	97.9	97.8	98.0	97.6	96.6	95.3	94.5	93.6	93.5
Foods, feeds, and beverages	99.6	100.8	101.9	99.4	99.2	99.6	98.8	97.9	98.1	97.7	96.7	96.6	96.6
Agricultural foods, feeds, and beverages	99.0	100.3	101.3	97.5	97.3	97.9	96.3	95.2	95.7	95.3	93.6	93.4	93.1
Nonagricultural (fish, beverages) food products	100.9	101.8	103.1	104.2	104.1	104.1	105.2	105.2	104.1	103.9	104.7	104.9	105.7
Industrial supplies and materials	100.4	101.0	100.4	100.1	100.8	101.1	102.5	101.8	98.6	94.6	92.2	89.8	90.2
Fuels and lubricants	105.8	106.8	104.9	104.6	106.6	107.2	113.2	111.5	103.3	93.9	87.9	81.0	82.5
Petroleum and petroleum products	105.3	106.6	104.5	103.1	105.5	105.7	111.6	107.7	100.4	90.4	84.5	76.8	78.7
Paper and paper base stocks	80.1	82.0	81.9	82.1	82.7	83.4	83.7	84.4	83.3	82.4	81.3	81.6	82.0
Materials associated with nondurable supplies and materials	96.1	96.3	95.8	95.5	95.6	95.4	94.6	94.3	93.8	92.7	92.1	91.5	91.3
Selected building materials	113.7	114.8	112.3	112.8	111.7	111.6	107.6	108.3	107.6	105.0	104.7	104.5	104.6
Unfinished metals associated with durable goods	95.8	96.2	98.0	97.4	97.3	98.5	97.4	96.4	95.5	94.0	93.8	94.0	94.1
Nonmetals associated with durable goods	96.0	95.8	95.7	95.6	95.1	94.1	94.2	94.2	94.2	93.7	92.6	92.6	91.8
Capital goods	92.6	92.0	92.1	91.7	91.0	90.5	89.8	89.4	89.0	88.2	87.6	87.2	86.8
Electric and electrical generating equipment	97.6	97.3	97.1	96.9	97.1	96.8	96.8	96.6	96.0	95.5	95.8	95.5	94.7
Nonelectrical machinery	90.7	90.0	90.1	89.7	88.9	88.3	87.4	87.0	86.5	85.7	84.9	84.5	84.0
Automotive vehicles, parts, and engines	100.6	100.3	100.8	100.9	101.0	101.2	101.4	101.4	101.3	101.3	101.3	101.4	101.3
Consumer goods, excluding automotive	99.6	99.7	99.5	99.6	99.4	99.2	99.3	99.1	99.2	99.0	99.1	98.6	98.2
Nondurables, manufactured	100.8	101.0	101.0	100.9	100.8	100.8	101.1	100.8	101.0	101.0	100.9	100.9	100.6
Durables, manufactured	98.4	98.0	98.1	98.1	97.8	97.4	97.3	97.1	97.2	96.9	96.6	96.3	95.7
Nonmanufactured consumer goods	98.9	102.8	99.1	99.8	99.8	99.9	101.4	100.1	99.4	98.9	105.8	98.1	97.5

38. U.S. international price indexes for selected categories of services

[1990 = 100, unless otherwise indicated]

Category	1996				1997				1998
	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.
Air freight (inbound) (9/90 = 100)	95.9	95.1	95.6	95.0	89.5	89.9	88.5	86.5	82.9
Air freight (outbound) (9/92 = 100)	99.1	99.4	98.9	99.2	99.8	99.2	99.6	97.7	97.2
Air passenger fares (U.S. carriers)	98.3	104.3	107.3	101.6	97.1	112.1	109.2	99.5	99.3
Air passenger fares (foreign carriers)	96.3	103.0	105.5	100.7	98.5	106.1	104.6	99.7	97.7
Ocean liner freight (inbound)	101.5	99.6	98.0	98.4	97.6	96.8	94.9	92.9	92.7

39. Indexes of productivity, hourly compensation, and unit costs, quarterly data seasonally adjusted

[1992 = 100]

Item	Quarterly indexes												
	1995				1996				1997				1998
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I
Business													
Output per hour of all persons	100.1	100.3	100.6	101.2	102.0	102.8	102.6	103.1	103.5	104.1	105.0	105.4	105.9
Compensation per hour	105.7	106.5	107.3	108.3	109.3	110.8	111.8	112.7	113.8	114.7	115.9	117.5	118.8
Real compensation per hour	98.2	98.2	98.4	98.7	98.9	99.3	99.6	99.6	100.1	100.5	101.1	101.9	102.9
Unit labor costs	105.5	106.1	106.7	107.0	107.2	107.8	108.9	109.3	110.0	110.2	110.4	111.5	112.2
Unit nonlabor payments	108.3	108.4	108.8	109.1	110.5	111.0	110.7	111.3	111.6	112.4	112.9	111.6	110.6
Implicit price deflator	106.5	107.0	107.4	107.8	108.4	108.9	109.6	110.0	110.6	111.0	111.3	111.5	111.6
Nonfarm business													
Output per hour of all persons	100.3	100.5	100.8	101.4	102.1	102.8	102.6	103.1	103.4	104.0	104.9	105.3	105.6
Compensation per hour	105.5	106.3	107.1	108.1	109.1	110.5	111.4	112.3	113.5	114.4	115.5	117.0	118.2
Real compensation per hour	98.1	98.0	98.3	98.6	98.7	99.1	99.3	99.3	99.8	100.2	100.7	101.4	102.4
Unit labor costs	105.2	105.8	106.3	106.7	106.9	107.5	108.6	109.0	109.8	110.0	110.1	111.1	112.0
Unit nonlabor payments	109.6	109.6	109.7	109.8	111.0	111.3	110.9	111.4	111.7	112.4	113.2	112.1	111.2
Implicit price deflator	106.8	107.2	107.5	107.8	108.4	108.8	109.4	109.8	110.5	110.9	111.2	111.5	111.7
Nonfinancial corporations													
Output per hour of all employees	102.9	103.4	104.7	105.4	106.0	107.1	107.8	108.3	108.8	109.4	111.1	111.3	112.0
Compensation per hour	105.1	105.9	106.6	107.5	108.3	109.7	110.7	111.5	112.6	113.5	114.7	116.0	117.2
Real compensation per hour	97.7	97.6	97.8	98.0	98.0	98.3	98.6	98.6	99.0	99.4	100.0	100.6	101.6
Total unit costs	101.6	101.8	101.1	101.2	101.4	101.4	101.5	101.5	101.8	102.0	101.5	102.1	102.3
Unit labor costs	102.2	102.4	101.9	102.0	102.1	102.4	102.7	102.9	103.5	103.7	103.2	104.3	104.7
Unit nonlabor costs	99.8	100.1	99.0	99.1	99.2	98.4	98.1	97.4	97.0	97.1	96.6	95.9	95.5
Unit profits	135.2	134.9	145.5	147.3	152.5	154.7	156.0	156.4	157.9	159.1	164.5	159.8	157.2
Unit nonlabor payments	109.6	109.7	111.9	112.4	114.0	114.0	114.1	113.7	113.8	114.3	115.4	113.6	112.6
Implicit price deflator	104.6	104.8	105.1	105.4	106.0	106.2	106.4	106.5	106.9	107.2	107.2	107.3	107.3
Manufacturing													
Output per hour of all persons	107.7	109.1	110.5	111.2	112.7	114.1	115.8	116.9	117.8	118.9	121.2	122.5	122.7
Compensation per hour	107.2	108.2	109.2	110.1	110.8	112.0	112.9	113.5	114.7	115.4	116.4	118.1	119.0
Real compensation per hour	99.7	99.8	100.2	100.4	100.2	100.4	100.6	100.3	100.8	101.1	101.5	102.5	103.1
Unit labor costs	99.6	99.2	98.9	99.0	98.3	98.2	97.5	97.1	97.3	97.1	96.0	96.5	97.0

40. Annual indexes of multifactor productivity and related measures, selected years

[1992 = 100]

Item	1960	1970	1973	1980	1989	1990	1991	1993	1994	1995	1996
Private business											
Productivity:											
Output per hour of all persons	50.8	70.1	75.5	83.8	95.4	96.1	96.7	100.2	100.5	100.5	102.6
Output per unit of capital services	119.1	117.8	122.0	108.1	103.9	102.1	98.6	100.7	102.3	101.5	101.3
Multifactor productivity	70.9	86.6	94.6	95.4	99.9	99.5	98.1	100.2	100.6	100.3	101.3
Output	34.0	51.6	61.3	72.6	97.8	98.6	96.9	102.7	107.0	109.6	113.4
Inputs:											
Labor input	60.7	68.4	72.6	80.5	99.7	100.3	99.0	102.8	107.2	109.9	112.0
Capital services	28.6	43.8	50.3	67.2	94.1	96.6	98.3	102.0	104.6	108.0	112.0
Combined units of labor and capital input	48.0	59.6	64.8	76.1	97.9	99.1	98.8	102.6	106.4	109.3	112.0
Capital per hour of all persons	42.7	59.5	63.9	77.5	91.8	94.1	98.1	99.5	98.3	99.1	101.3
Private nonfarm business											
Productivity:											
Output per hour of all persons	54.3	72.2	80.3	85.5	95.7	96.2	96.9	100.1	100.5	100.7	102.6
Output per unit of capital services	127.4	124.3	128.2	111.3	104.5	102.5	98.8	100.8	102.1	101.4	101.1
Multifactor productivity	75.0	89.3	97.5	97.5	100.4	99.7	98.3	100.2	100.5	100.3	101.2
Output	33.7	51.8	61.8	73.1	98.1	98.8	97.0	103.0	107.1	109.9	113.7
Inputs:											
Labor input	56.5	66.7	71.2	79.4	99.6	100.3	98.9	103.1	107.3	110.0	112.3
Capital services	26.5	41.7	48.2	65.6	93.9	96.4	98.2	102.2	104.9	108.4	112.5
Combined units of labor and capital input	44.9	58.0	63.4	74.9	97.8	99.1	98.6	102.8	106.6	109.5	112.4
Capital per hour of all persons	42.6	58.1	62.6	76.8	91.6	93.9	98.0	99.3	98.4	99.3	101.5
Manufacturing											
Productivity:											
Output per hour of all persons	41.0	54.8	62.2	70.5	90.8	93.0	94.9	102.0	105.2	109.6	114.7
Output per unit of capital services	126.3	119.6	129.1	103.1	103.7	101.1	97.2	101.7	105.3	106.7	107.4
Multifactor productivity	71.7	83.2	90.8	86.9	99.6	99.2	98.3	101.3	104.3	108.3	111.1
Output	37.7	57.1	68.7	75.8	97.4	97.5	95.4	103.4	109.1	114.1	118.8
Inputs:											
Hours of all persons	92.0	104.2	110.5	107.6	107.2	104.8	100.6	101.4	103.7	104.1	103.6
Capital services	29.8	47.8	53.2	73.5	93.9	96.5	98.2	101.7	103.7	106.9	110.6

– Data not available.

NOTE: Productivity and output in this table have not been revised for consistency with the December 1991 comprehensive revisions to the National Income and Product Accounts.

41. Annual indexes of productivity, hourly compensation, unit costs, and prices, selected years

[1992 = 100]

Item	1960	1970	1973	1980	1988	1989	1990	1991	1993	1994	1995	1996	1997
Business													
Output per hour of all persons	51.4	70.5	78.4	84.2	94.6	95.4	96.1	96.7	100.2	100.6	100.5	102.6	104.5
Compensation per hour	13.6	23.6	29.0	54.5	83.5	85.8	90.7	95.1	102.6	104.3	106.9	111.1	115.4
Real compensation per hour	64.7	85.4	91.6	92.7	99.0	97.1	97.4	97.9	99.6	98.7	98.4	99.3	100.9
Unit labor costs	26.6	33.5	37.0	64.7	88.2	89.9	94.4	98.3	102.4	103.7	106.3	108.3	110.5
Unit nonlabor payments	24.6	30.6	36.6	59.6	84.1	91.3	93.5	96.6	102.7	106.8	108.7	110.9	112.1
Implicit price deflator	25.8	32.4	36.8	62.8	86.8	90.4	94.1	97.7	102.5	104.8	107.2	109.2	111.1
Nonfarm business													
Output per hour of all persons	54.8	72.6	80.7	86.0	95.2	95.7	96.2	96.9	100.1	100.5	100.7	102.6	104.3
Compensation per hour	14.3	23.8	29.2	54.8	83.6	85.8	90.6	95.1	102.3	104.1	106.7	110.8	115.0
Real compensation per hour	67.7	86.1	92.3	93.3	99.1	97.1	97.3	97.9	99.3	98.5	98.3	99.1	100.6
Unit labor costs	26.1	32.8	36.2	63.8	87.8	89.7	94.1	98.1	102.2	103.6	106.0	108.0	110.3
Unit nonlabor payments	24.0	30.3	34.3	58.6	83.8	90.7	93.2	96.8	103.1	107.4	109.7	111.2	112.3
Implicit price deflator	25.3	31.9	35.5	61.9	86.4	90.0	93.8	97.6	102.5	104.9	107.3	109.1	111.0
Nonfinancial corporations													
Output per hour of all employees	54.5	69.0	74.4	80.3	96.7	95.4	96.1	97.5	101.2	103.3	104.1	107.3	110.2
Compensation per hour	15.6	25.4	30.7	56.7	84.8	86.9	91.4	95.6	102.1	103.9	106.3	110.1	114.2
Real compensation per hour	73.9	91.7	97.2	96.5	100.6	98.4	98.1	98.5	99.1	98.4	97.9	98.4	99.9
Total unit costs	27.8	36.1	40.3	70.2	88.2	92.5	96.2	99.3	100.5	100.3	101.4	101.4	101.9
Unit labor costs	28.6	36.7	41.3	70.5	87.7	91.1	95.2	98.0	100.9	100.6	102.1	102.6	103.7
Unit nonlabor costs	25.3	34.3	37.5	69.2	89.7	96.3	99.1	103.0	99.4	99.7	99.5	98.3	96.6
Unit profits	47.7	42.0	52.8	64.4	103.8	96.0	94.6	93.9	113.3	134.5	140.8	154.9	160.3
Unit nonlabor payments	31.5	36.4	41.7	67.9	93.6	96.2	97.9	100.5	103.2	109.4	110.9	114.0	114.3
Implicit price deflator	29.6	36.6	41.5	69.7	89.6	92.8	96.1	98.8	101.7	103.4	105.0	106.3	107.2
Manufacturing													
Output per hour of all persons	40.9	54.7	62.1	70.4	90.7	90.8	93.0	94.9	102.0	105.2	109.6	114.7	120.0
Compensation per hour	14.9	23.8	28.6	55.8	84.0	86.8	91.0	95.7	102.9	105.6	108.7	112.1	116.1
Real compensation per hour	70.6	86.1	90.5	94.9	99.6	98.2	97.6	98.6	99.9	100.0	100.1	100.3	101.5
Unit labor costs	36.5	43.5	46.1	79.2	92.6	95.5	97.8	100.9	100.9	100.4	99.2	97.8	96.7
Unit nonlabor payments	26.4	30.0	36.8	79.2	90.8	95.5	99.2	98.6	100.8	102.9	106.5	108.4	–
Implicit price deflator	30.2	35.2	40.4	79.2	91.5	95.5	98.7	99.4	100.8	101.9	103.7	104.4	–

– Data not available.

42. Annual indexes of output per hour for selected industries

[1987 = 100]

Industry	SIC	1973	1984	1985	1986	1988	1989	1990	1991	1992	1993	1994	1995
Iron mining, usable ore	101	50.8	70.0	76.1	79.3	103.1	98.4	88.5	85.0	83.3	86.9	85.0	95.9
Copper mining, recoverable metal	102	42.4	75.9	93.6	109.7	109.1	106.5	102.7	100.5	115.2	118.1	126.0	120.3
Coal mining	12	68.9	83.4	85.1	92.4	110.5	116.4	118.3	122.1	132.7	140.4	147.3	153.9
Crude petroleum and natural gas production	131	173.5	81.9	83.0	90.3	100.9	98.0	96.9	97.9	102.1	105.9	112.4	120.5
Nonmetallic minerals, except fuels	14	86.5	94.0	95.1	95.1	101.0	99.6	101.4	98.5	103.0	100.8	104.4	103.0
Meat packing plants	2011	65.1	93.6	98.3	98.7	100.9	97.9	96.8	100.2	104.5	105.1	101.0	101.7
Sausages and other prepared meats	2013	67.2	99.3	97.8	98.6	107.1	105.9	97.4	95.9	104.6	105.0	101.4	105.3
Poultry dressing and processing	2015	58.0	99.1	100.5	95.6	96.2	105.2	108.6	115.4	119.6	119.8	119.4	122.5
Cheese, natural and processed	2022	72.1	85.1	88.2	93.5	99.8	102.6	108.2	114.6	121.8	115.5	117.5	120.5
Fluid milk	2026	54.6	88.9	92.0	96.0	102.3	103.7	103.3	104.3	104.0	107.1	112.9	115.8
Canned fruits and vegetables	2033	70.1	87.4	92.8	99.1	98.7	92.9	93.8	100.1	101.5	106.6	101.5	109.3
Frozen fruits and vegetables	2037	77.9	99.7	95.2	103.3	94.0	98.0	90.0	94.6	96.4	102.8	109.3	111.1
Flour and other grain mill products	2041	68.5	91.7	95.8	95.9	102.5	102.5	107.9	108.3	111.9	122.2	126.8	117.6
Cereal breakfast foods	2043	65.6	92.8	97.1	98.6	98.6	95.5	100.2	102.3	99.1	95.5	106.6	118.4
Rice milling	2044	59.3	63.8	68.6	72.7	83.1	97.5	104.9	99.3	101.4	129.5	109.2	102.6
Wet corn milling	2046	24.1	74.9	74.6	97.3	96.1	103.6	103.8	100.4	101.8	112.0	110.0	122.5
Prepared feeds for animals and fowls	2047,48	51.6	89.2	96.9	95.2	101.5	103.7	107.0	108.0	108.1	110.7	108.5	115.6
Bakery products	205	82.3	93.4	95.6	100.1	93.4	91.0	93.2	89.2	89.4	90.3	91.1	92.2
Raw and refined cane sugar	2061,62	78.5	89.1	96.6	96.9	99.7	101.8	107.7	110.3	111.7	120.2	115.0	121.8
Beet sugar	2063	75.9	79.7	73.4	80.8	97.6	92.1	97.6	102.3	110.8	109.8	124.2	135.9
Malt beverages	2082	43.3	77.7	73.7	85.0	99.1	105.2	110.6	109.6	113.4	112.6	117.5	118.0
Bottled and canned soft drinks	2086	49.2	81.6	85.2	91.4	109.8	119.4	126.7	135.1	144.2	144.7	150.4	160.0
Fresh or frozen prepared fish	2092	93.3	89.4	87.8	91.2	100.0	94.6	88.9	87.4	95.6	100.1	93.2	88.1
Cigarettes, chewing and smoking tobacco	211,3	79.4	91.3	93.6	95.4	104.8	106.7	109.9	111.6	113.4	101.6	130.1	149.2
Cotton and synthetic broadwoven fabrics	221,2	58.1	91.1	94.8	101.1	100.0	103.9	108.1	113.8	118.4	125.8	134.1	142.8
Hosiery	2251,52	63.2	102.4	100.9	102.5	108.1	110.9	109.2	115.7	122.2	117.4	124.8	127.1
Yarn spinning mills	2281	55.9	86.2	89.6	93.2	98.5	103.3	106.0	105.5	114.1	120.0	125.5	133.2
Men's and boys' suits and coats	231	75.6	93.2	106.3	103.5	102.4	101.9	98.7	91.4	102.4	109.0	129.1	121.5
Housefurnishings, except curtains and draperies	2392	87.2	83.6	92.4	93.6	99.8	96.8	101.3	110.9	117.9	118.7	114.1	115.4
Sawmills and planing mills, general	2421	68.3	89.7	93.5	102.3	101.2	100.1	99.9	102.9	108.9	101.5	103.2	110.3
Hardwood dimension and flooring mills	2426	84.0	85.6	95.1	98.8	97.5	96.9	95.7	98.6	105.4	111.2	111.0	117.1
Millwork	2431	104.2	100.4	97.4	102.2	98.2	97.8	97.8	95.7	93.4	92.5	88.5	86.0
Wood kitchen cabinets	2434	80.5	91.6	87.1	85.2	97.7	91.1	93.6	92.3	102.0	101.9	101.3	102.8
Hardwood veneer and plywood	2435	80.2	83.9	84.5	83.2	99.0	98.9	92.2	93.3	104.1	106.1	90.5	84.2
Softwood veneer and plywood	2436	67.7	87.1	88.3	90.4	100.6	102.6	108.3	114.3	109.2	103.4	101.4	101.5
Wood containers	244	–	103.4	99.6	98.7	103.2	108.8	111.6	113.5	109.8	100.5	101.0	107.1
Mobile homes	2451	–	94.4	94.3	94.4	100.6	98.8	101.2	102.5	102.4	103.8	97.6	99.7
Wood household furniture	2511,17	88.5	96.9	95.0	99.6	100.8	101.2	102.5	101.3	106.5	106.2	105.7	109.1
Upholstered household furniture	2512	75.1	96.2	96.3	101.7	98.8	101.2	107.7	115.1	120.0	120.0	130.6	138.7
Metal household furniture	2514	68.7	84.9	89.4	95.3	100.2	100.7	101.4	107.2	109.5	106.8	96.1	95.1
Mattresses and bedsprings	2515	68.0	84.1	79.5	85.5	92.5	106.5	106.2	108.9	103.4	104.4	105.5	110.9
Wood office furniture	2521	82.5	99.3	99.4	96.2	95.4	95.4	97.4	101.3	107.1	104.4	104.0	103.3
Office furniture, except wood	2522	70.6	97.6	96.9	100.6	96.0	98.7	95.6	92.9	93.9	94.3	95.4	98.4
Pulp, paper, and paperboard mills	261,2,3	67.1	89.7	87.6	93.3	103.1	103.2	102.6	102.1	104.7	104.5	112.4	116.2
Corrugated and solid fiber boxes	2635	70.3	96.7	99.6	102.8	99.8	98.1	100.9	100.8	101.9	105.5	110.0	107.6
Folding paperboard boxes	2657	86.4	93.4	90.0	88.5	101.6	105.4	105.3	110.9	116.4	117.9	122.9	126.8
Paper and plastic bags	2673,74	90.7	99.9	99.7	101.8	97.7	93.7	92.2	89.5	93.9	92.0	96.5	91.7
Alkalies and chlorine	2812	38.4	66.6	70.8	97.7	101.6	92.5	92.3	86.2	87.7	84.8	84.1	87.7
Inorganic pigments	2816	72.6	81.4	84.4	88.6	103.3	107.8	104.5	98.9	107.8	107.8	115.0	108.1
Industrial inorganic chemicals, n.e.s.	2819 pt.	90.6	88.4	87.3	88.6	97.5	105.9	109.0	102.3	104.9	110.7	113.2	126.5
Synthetic fibers	2823,24	38.4	79.8	79.3	90.8	102.9	104.1	98.7	97.5	99.3	112.3	119.4	125.7
Soaps and detergents	2841	89.1	90.5	91.5	92.3	102.4	109.4	128.2	126.4	115.3	112.6	111.7	126.0
Cosmetics and other toiletries	2844	88.6	87.3	90.3	96.6	105.2	102.7	101.1	103.9	108.4	108.5	111.6	115.2
Paints and allied products	285	63.2	93.6	96.9	98.0	101.4	103.3	106.3	104.3	102.9	108.8	116.7	116.6
Industrial organic chemicals, n.e.c.	2869	73.1	89.6	87.8	92.3	110.5	110.5	99.0	92.6	91.6	88.5	96.2	93.3
Nitrogenous fertilizers	2873	65.4	101.1	100.7	90.5	101.3	103.3	107.7	108.4	111.8	117.5	111.1	107.6
Phosphatic fertilizers	2874	62.4	88.4	84.2	79.6	92.0	83.3	99.7	107.3	105.0	106.0	122.6	118.1
Fertilizers, mixing only	2875	90.5	97.8	100.8	95.1	104.7	112.4	112.8	114.6	127.1	139.1	118.9	119.9
Agricultural chemicals, n.e.c.	2879	74.3	98.8	92.9	93.2	108.4	108.9	106.2	102.2	108.4	111.0	115.6	124.9
Petroleum refining	291	84.0	78.7	84.7	94.9	105.3	109.6	109.2	106.6	111.3	120.1	123.8	133.0
Tires and inner tubes	301	56.0	88.8	89.3	92.6	102.9	103.8	103.0	102.4	107.8	116.5	124.1	131.4
Rubber and plastics hose and belting	3052	78.4	104.9	100.1	102.1	108.2	97.8	103.3	96.1	104.3	111.3	102.9	102.0
Miscellaneous plastics products, n.e.c.	308	72.8	86.4	88.2	88.9	100.1	101.1	105.3	107.5	114.0	116.2	119.8	120.2
Footwear, except rubber	314	90.7	98.8	100.3	101.9	102.3	100.9	92.8	93.1	93.3	96.4	106.0	101.2
Glass containers	3221	75.2	97.4	93.4	98.5	99.6	101.6	107.5	108.1	111.5	106.0	111.0	109.9
Cement, hydraulic	324	71.3	89.4	91.8	97.1	103.2	110.2	112.4	108.3	115.1	119.9	125.6	123.4
Clay construction products	3251,53,59	78.5	92.7	94.2	95.5	105.2	98.3	102.3	97.4	98.9	102.3	108.0	111.3
Clay refractories	3255	80.1	96.9	94.9	100.8	102.3	98.5	103.6	97.9	98.6	95.0	107.3	96.0
Concrete products	3271,72	92.5	98.3	99.5	104.4	102.1	104.8	103.8	104.9	103.2	109.3	108.6	114.3
Ready-mixed concrete	3273	99.1	92.9	93.6	96.0	100.2	101.0	100.2	96.7	98.2	96.9	93.0	95.8
Steel	331	64.2	81.3	85.8	89.7	113.5	108.5	110.5	108.2	117.7	134.0	144.6	145.4
Gray and ductile iron foundries	3321	91.3	99.1	96.9	99.3	108.0	106.9	107.9	104.6	107.7	113.1	115.5	112.4
Steel foundries	3324,25	105.8	102.4	99.5	104.9	95.5	96.3	96.9	94.8	95.6	101.5	102.2	106.2
Primary copper	3331	32.8	57.6	73.8	88.7	103.8	94.7	84.9	82.5	71.9	86.9	74.0	77.3
Primary aluminum	3334	73.6	100.7	97.6	102.7	102.3	104.8	106.5	110.6	109.7	105.7	99.0	102.2
Copper rolling and drawing	3351	77.5	84.7	86.2	92.3	93.0	89.1	90.7	86.4	83.0	89.2	96.6	96.6

See footnotes at end of table.

42. Continued—Annual indexes of output per hour for selected industries

[1987 = 100]

Industry	SIC	1973	1984	1985	1986	1988	1989	1990	1991	1992	1993	1994	1995
Aluminum rolling and drawing	3353,54,55	79.0	92.3	85.7	95.8	96.3	90.6	91.2	90.3	96.5	93.9	99.6	93.9
Metal cans	3411	59.2	101.1	99.2	95.9	106.9	108.1	117.5	123.8	129.7	134.6	140.7	146.3
Hand and edge tools, n.e.c.	3423	108.6	97.9	98.8	97.1	100.5	101.0	95.0	93.1	93.1	93.3	100.8	98.4
Heating equipment, except electric	3433	78.0	91.6	91.9	96.2	113.7	105.0	114.0	119.4	121.2	121.8	130.2	131.1
Fabricated structural metal	3441	97.1	91.2	99.0	99.0	100.4	97.6	101.2	104.5	103.6	108.1	109.8	110.1
Metal doors, sash, and trim	3442	90.5	101.4	104.8	102.0	104.6	105.8	103.1	103.0	106.7	105.5	103.3	96.8
Fabricated plate work	3443	–	88.3	87.5	86.4	96.2	90.3	94.1	94.3	98.3	98.3	109.3	109.4
Bolts, nuts, rivets, and washers	3452	75.8	85.3	88.8	91.0	97.0	93.8	93.7	96.1	91.9	92.8	95.8	100.5
Automotive stampings	3465	74.9	100.5	94.5	95.7	102.8	101.8	96.1	97.3	113.8	120.8	124.9	128.4
Metal stampings, n.e.c.	3469	96.8	94.3	88.6	93.9	98.0	95.3	90.4	89.5	98.8	104.8	109.3	112.8
Valves and pipe fittings	3491,92,94	93.6	95.0	94.4	93.9	101.4	101.2	102.1	101.7	100.4	104.2	109.7	109.7
Fabricated pipe and fittings	3498	140.8	130.0	120.0	121.4	99.6	102.3	107.0	114.2	109.6	113.3	112.9	113.0
Internal combustion engines, n.e.c.	3519	83.1	90.2	92.0	98.5	106.3	113.2	108.4	103.3	101.2	104.3	119.5	124.9
Farm machinery and equipment	3523	108.6	112.7	101.6	95.7	112.8	124.0	131.8	125.3	119.1	123.7	131.4	143.4
Lawn and garden equipment	3524	70.0	79.3	82.4	93.2	97.5	93.2	94.8	95.8	108.7	114.7	116.6	126.3
Construction machinery	3531	87.9	91.6	92.2	99.1	107.6	110.2	109.6	101.0	100.6	107.0	123.2	132.9
Mining machinery	3532	102.2	90.2	93.7	95.1	102.0	107.0	98.4	90.0	90.1	109.5	99.5	109.3
Oil and gas field machinery	3533	156.9	126.0	115.2	105.9	123.1	116.1	113.9	110.9	125.7	122.1	119.9	117.5
Metal cutting machine tools	3541	101.4	87.2	89.9	92.0	94.8	99.9	99.2	94.8	113.0	111.4	110.0	111.9
Metal forming machine tools	3542	112.5	90.7	93.1	93.7	113.1	107.9	97.7	88.4	102.5	115.0	104.3	116.2
Machine tool accessories	3545	105.9	94.6	92.3	95.0	98.2	102.5	104.1	104.6	96.8	101.5	114.8	122.3
Pumps and pumping equipment	3561,94	84.0	92.0	91.9	92.7	105.7	101.3	103.4	102.5	98.6	105.2	110.6	113.4
Ball and roller bearings	3562	108.0	95.4	91.6	94.1	102.9	99.0	93.1	89.6	97.8	103.8	106.3	107.2
Air and gas compressors	3563	87.6	90.1	92.2	96.0	103.7	105.3	107.8	110.2	112.7	111.5	117.3	115.0
Refrigeration and heating equipment	3585	100.3	100.1	98.1	95.8	104.0	109.0	106.3	104.8	107.6	111.8	115.1	115.0
Carburetors, pistons, rings, and valves	3592	102.9	95.1	98.8	95.7	109.9	119.4	114.1	115.1	126.4	136.4	142.9	143.0
Transformers, except electronic	3612	100.2	95.4	97.0	99.3	102.8	104.3	107.3	110.7	126.5	121.8	143.4	159.9
Switchgear and switchboard apparatus	3613	88.2	92.2	95.1	95.9	109.1	106.5	106.5	103.9	114.6	123.1	123.8	131.7
Motors and generators	3621	89.0	93.3	94.9	96.8	102.8	103.6	100.9	104.4	111.5	127.1	124.4	139.1
Household cooking equipment	3631	61.8	92.0	90.3	104.6	116.1	96.8	99.5	104.9	100.9	103.7	127.4	125.5
Household refrigerators and freezers	3632	70.1	97.5	104.1	101.2	103.3	105.2	107.3	111.8	116.0	116.8	126.7	124.2
Household laundry equipment	3633	72.3	92.8	93.8	97.4	106.1	98.7	104.0	111.0	115.9	144.8	150.5	131.6
Household appliances, n.e.c.	3639	63.7	85.9	86.3	89.1	100.6	96.3	91.8	80.5	91.6	117.6	118.9	116.0
Electric lamp bulbs and tubes	3641	61.3	86.4	94.2	91.5	100.3	92.7	98.0	101.8	112.8	100.9	98.9	95.9
Lighting fixtures and equipment	3645,46,47,48	84.1	91.3	96.7	103.0	98.1	97.3	96.0	94.3	98.9	103.7	110.0	107.5
Household audio and video equipment	3651	22.3	84.7	96.3	106.9	106.2	120.5	124.1	135.7	151.8	163.1	179.3	225.3
Motor vehicles and equipment	371	68.7	91.1	95.3	95.1	103.2	103.3	102.4	96.7	104.3	105.4	107.3	104.4
Aircraft	3721	79.2	84.7	94.2	93.5	105.8	107.5	112.9	131.4	141.7	142.5	131.8	132.5
Instruments to measure electricity	3825	63.7	96.2	95.4	90.4	106.1	105.2	106.2	108.3	119.0	122.4	144.7	163.6
Photographic equipment and supplies	386	58.9	88.2	86.1	94.1	105.6	113.0	107.8	110.2	116.4	126.9	132.7	129.4
Railroad transportation	4011	46.5	78.0	81.5	89.2	108.4	114.6	118.5	127.8	139.6	145.6	–	–
Bus carriers, class 1	411,13,14 pts.	116.8	100.1	96.1	95.6	107.9	104.6	–	–	–	–	–	–
Trucking, except local	4213	69.5	97.3	93.8	96.8	105.2	109.4	–	–	–	–	–	–
U.S. Postal service	43	88.6	98.1	98.4	100.0	99.9	99.7	104.0	103.7	104.5	107.1	106.6	106.5
Air transportation	4512,13,22 pts.	54.3	88.8	92.0	93.8	99.5	95.8	92.9	92.5	96.9	100.2	105.8	108.4
Petroleum pipelines	4612,13	93.2	99.4	99.9	102.0	104.8	103.2	102.5	99.0	100.2	104.4	108.1	117.7
Telephone communications	481	42.7	84.5	88.9	95.0	106.2	111.6	113.3	119.8	127.7	135.2	141.6	144.6
Electric utilities	491,3 pt.	88.4	93.8	93.0	95.3	104.9	107.7	110.1	113.4	115.2	120.6	126.8	135.0
Gas utilities	492,3 pt	145.5	114.1	111.9	102.1	105.5	103.5	94.8	94.0	95.3	107.0	102.2	105.9
Scrap and waste materials	5093	–	89.1	93.4	97.7	95.4	86.0	98.6	98.9	101.7	109.4	107.7	108.9
Hardware stores	525	83.3	96.6	95.6	101.6	108.6	115.2	110.4	102.5	107.2	106.7	114.5	106.4
Department stores	531	60.8	90.4	92.6	97.4	99.2	96.9	94.2	98.2	101.2	105.0	107.1	107.6
Variety stores	533	148.9	141.9	129.2	106.7	101.9	124.5	151.3	154.3	167.7	170.4	160.5	159.3
General merchandise stores	539	–	78.6	80.9	97.5	100.8	109.8	116.4	121.8	136.1	159.9	161.6	165.9
Grocery stores	541	109.1	107.9	105.7	103.8	98.9	95.4	94.6	93.7	93.3	92.7	92.2	91.2
Retail bakeries	546	125.6	96.0	87.6	93.6	89.8	83.3	89.7	94.7	94.0	85.6	85.6	84.6
New and used car dealers	551	85.1	99.5	99.8	101.6	103.5	102.5	106.1	104.2	106.5	107.4	108.3	107.1
Auto and home supply stores	553	71.1	90.4	94.5	94.3	103.2	101.5	102.8	98.9	98.9	98.9	103.0	106.8
Gasoline service stations	554	59.5	87.0	93.5	101.8	103.0	105.1	102.6	104.3	109.7	112.4	115.0	119.2
Men's and boys' clothing stores	561	77.6	93.7	98.3	100.7	106.0	109.3	112.8	117.7	116.4	115.7	120.9	122.6
Women's clothing stores	562	58.9	98.0	99.8	107.0	97.5	99.1	100.8	101.9	110.7	116.2	118.1	122.9
Family clothing stores	565	76.2	106.2	103.1	103.3	102.4	105.5	104.9	106.9	112.3	111.6	114.9	128.4
Shoe stores	566	81.3	90.6	97.6	105.5	102.7	107.2	106.2	105.1	111.5	110.8	120.5	123.8
Furniture and homefurnishings stores	571	83.9	97.9	94.8	101.2	98.9	101.3	102.2	101.6	108.6	108.9	111.0	116.4
Household appliance stores	572	59.8	87.2	94.9	106.5	98.5	103.5	102.8	105.2	113.9	114.6	115.9	119.9
Radio, television, and computer stores	573	45.6	79.1	89.3	94.1	119.3	115.7	120.9	129.6	143.5	157.3	178.4	195.6
Eating and drinking places	58	110.3	98.9	96.2	99.3	102.8	102.2	104.0	103.1	102.4	103.1	101.4	102.2
Drug stores and proprietary stores	591	92.2	106.4	102.5	101.6	101.9	102.5	103.6	104.7	103.6	104.7	103.7	102.8
Liquor stores	592	95.0	93.6	101.9	93.8	98.2	101.1	105.2	105.9	108.4	100.5	98.7	104.4
Miscellaneous shopping goods stores	594	–	92.6	94.1	97.1	98.4	101.7	101.5	102.0	100.6	103.9	108.2	114.0
Catalog and mail-order houses	5961	–	80.6	80.8	87.2	107.3	111.4	102.1	107.2	113.8	121.0	120.0	123.9
Commercial banks	602	81.2	89.6	94.3	96.2	102.9	101.3	104.6	107.4	109.4	119.5	119.5	124.4
Hotels and motels	701	102.4	101.6	101.2	98.9	97.6	95.0	96.0	99.0	107.6	106.8	111.0	113.2
Laundry, cleaning, and garment services	721	110.8	107.5	103.3	100.8	97.2	100.5	101.0	98.7	99.9	99.9	101.9	105.1
Beauty shops	723	85.9	98.5	96.1	96.9	95.1	99.6	96.8	94.8	99.6	96.5	101.1	104.8
Automotive repair shops	753	109.4	91.7	99.4	96.2	105.7	108.1	106.9	98.7	103.3	102.9	110.4	116.4

n.e.s. = not elsewhere specified.
n.e.c. = not elsewhere classified.
– Data not available.

43. Unemployment rates, approximating U.S. concepts, in nine countries, quarterly data seasonally adjusted

Country	Annual average		1996			1997				1998
	1996	1997	II	III	IV	I	II	III	IV	I
United States	5.4	4.9	5.4	5.3	5.3	5.3	4.9	4.9	4.7	4.7
Canada	9.7	9.2	9.6	9.8	9.9	9.6	9.4	9.0	8.9	8.6
Australia	8.6	8.6	8.5	8.7	8.6	8.7	8.7	8.6	8.3	8.1
Japan	3.4	3.4	3.5	3.4	3.3	3.3	3.4	3.4	3.5	3.7
France	12.6	–	12.5	12.7	12.6	12.6	12.7	12.7	12.5	–
Germany	7.2	–	7.1	7.2	7.5	7.7	7.7	7.8	7.8	–
Italy[1]	12.1	12.3	12.1	12.2	12.1	12.3	12.4	12.2	12.3	12.1
Sweden	9.9	–	9.6	10.0	10.4	10.6	10.4	9.5	8.8	–
United Kingdom	8.2	–	8.3	8.2	7.9	7.5	7.3	6.9	6.6	6.4

[1] Quarterly rates are for the first month of the quarter.
– Data not available.

NOTE: Quarterly figures for France, Germany, and the United Kingdom are calculated by applying annual adjustment factors to current published data, and therefore should be viewed as less precise indicators of unemployment under U.S. concepts than the annual figures. See "Notes on the data" for information on breaks in series. For further qualifications and historical data, see *Comparative Labor Force Statistics, 10 Countries* (Bureau of Labor Statistics, August 1996).

44. Annual data: Employment status of the working-age population, approximating U.S. concepts, 10 countries

[Numbers in thousands]

Employment status and country	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Civilian labor force										
United States[1]	119,865	121,669	123,869	125,840	126,346	128,105	129,200	131,056	132,304	133,943
Canada	13,631	13,900	14,151	14,329	14,408	14,482	14,663	14,832	14,928	15,145
Australia	7,758	7,974	8,228	8,444	8,490	8,562	8,619	8,776	9,001	9,127
Japan	60,050	60,860	61,920	63,050	64,280	65,040	65,470	65,780	65,990	66,450
France	23,890	23,980	24,170	24,300	24,490	24,570	24,640	24,760	24,860	25,100
Germany	28,390	28,610	28,840	29,410	29,760	30,030	29,950	29,860	29,710	29,590
Italy	22,350	22,660	22,530	22,670	22,940	22,910	22,760	22,640	22,700	22,820
Netherlands	6,500	6,310	6,430	6,640	6,750	6,950	7,090	7,190	7,270	7,320
Sweden	4,437	4,494	4,552	4,597	4,591	4,520	4,443	4,418	4,460	4,459
United Kingdom	27,870	28,270	28,580	28,730	28,610	28,410	28,310	28,280	28,480	28,620
Participation rate[2]										
United States[1]	65.6	65.9	66.5	66.5	66.2	66.4	66.3	66.6	66.6	66.8
Canada	66.7	67.2	67.5	67.3	66.7	65.9	65.5	65.3	64.8	64.9
Australia	63.0	63.3	64.0	64.6	64.1	63.9	63.6	63.9	64.6	64.6
Japan	61.9	61.9	62.2	62.6	63.2	63.4	63.3	63.1	62.9	63.0
France	56.5	56.2	56.1	56.0	56.0	55.8	55.6	55.5	55.3	55.5
Germany	55.0	55.1	55.2	55.3	55.4	55.1	54.2	53.7	53.2	52.8
Italy	47.6	47.4	47.3	47.2	47.7	47.5	48.1	47.5	47.6	47.7
Netherlands	56.3	54.2	54.7	56.1	56.5	57.8	58.5	59.0	59.3	59.4
Sweden	66.4	66.9	67.3	67.4	67.0	65.7	64.5	63.9	64.3	64.3
United Kingdom	62.9	63.5	64.0	64.1	63.7	63.1	62.8	62.5	62.7	62.7
Employed										
United States[1]	112,440	114,968	117,342	118,793	117,718	118,492	120,259	123,060	124,900	126,708
Canada	12,422	12,819	13,086	13,165	12,916	12,842	13,015	13,292	13,506	13,676
Australia	7,129	7,398	7,720	7,859	7,676	7,637	7,680	7,921	8,235	8,344
Japan	58,320	59,310	60,500	61,710	62,920	63,620	63,810	63,860	63,890	64,200
France	21,320	21,520	21,850	22,100	22,140	22,010	21,730	21,710	21,940	21,950
Germany	26,590	26,800	27,200	27,950	28,480	28,660	28,230	27,920	27,770	27,470
Italy	20,590	20,870	20,770	21,080	21,360	21,230	20,430	20,080	19,970	20,050
Netherlands	5,850	5,830	5,980	6,230	6,350	6,560	6,620	6,670	6,760	6,850
Sweden	4,340	4,410	4,480	4,513	4,447	4,265	4,028	3,992	4,056	4,019
United Kingdom	25,010	25,850	26,510	26,740	26,090	25,530	25,340	25,550	26,000	26,280
Employment-population ratio[3]										
United States[1]	61.5	62.3	63.0	62.8	61.7	61.5	61.7	62.5	62.9	63.2
Canada	60.8	62.0	62.4	61.9	59.8	58.4	58.2	58.5	58.6	58.6
Australia	57.9	58.7	60.1	60.1	57.9	57.0	56.6	57.7	59.1	59.1
Japan	60.1	60.4	60.8	61.3	61.8	62.0	61.7	61.3	60.9	60.9
France	50.4	50.4	50.7	50.9	50.6	50.0	49.0	48.7	48.8	48.5
Germany	51.5	51.6	52.0	52.6	53.0	52.6	51.1	50.2	49.7	49.0
Italy	43.8	43.7	43.6	43.9	44.5	44.0	43.1	42.1	41.8	41.9
Netherlands	50.7	50.0	50.9	52.6	53.2	54.5	54.7	54.7	55.2	55.6
Sweden	65.0	65.7	66.2	66.1	64.9	62.0	58.5	57.6	58.4	57.9
United Kingdom	56.4	58.1	59.3	59.6	58.0	56.7	56.2	56.5	57.2	57.6
Unemployed										
United States[1]	7,425	6,701	6,528	7,047	8,628	9,613	8,940	7,996	7,404	7,236
Canada	1,208	1,082	1,065	1,164	1,492	1,640	1,649	1,541	1,422	1,469
Australia	629	576	508	585	814	925	939	856	766	783
Japan	1,730	1,550	1,420	1,340	1,360	1,420	1,660	1,920	2,100	2,250
France	2,570	2,460	2,320	2,200	2,350	2,560	2,910	3,050	2,920	3,150
Germany	1,800	1,810	1,640	1,460	1,280	1,370	1,720	1,940	1,940	2,120
Italy	1,760	1,790	1,760	1,590	1,580	1,680	2,330	2,560	2,720	2,760
Netherlands	650	480	450	410	400	390	470	520	510	470
Sweden	97	84	72	84	144	255	415	426	404	440
United Kingdom	2,860	2,420	2,070	1,990	2,520	2,880	2,970	2,730	2,480	2,340
Unemployment rate										
United States[1]	6.2	5.5	5.3	5.6	6.8	7.5	6.9	6.1	5.6	5.4
Canada	8.9	7.8	7.5	8.1	10.4	11.3	11.2	10.4	9.5	9.7
Australia	8.1	7.2	6.2	6.9	9.6	10.8	10.9	9.7	8.5	8.6
Japan	2.9	2.5	2.3	2.1	2.1	2.2	2.5	2.9	3.2	3.4
France	10.8	10.3	9.6	9.1	9.6	10.4	11.8	12.3	11.8	12.6
Germany	6.3	6.3	5.7	5.0	4.3	4.6	5.7	6.5	6.5	7.2
Italy	7.9	7.9	7.8	7.0	6.9	7.3	10.2	11.3	12.0	12.1
Netherlands	10.0	7.6	7.0	6.2	5.9	5.6	6.6	7.2	7.0	6.4
Sweden	2.2	1.9	1.6	1.8	3.1	5.6	9.3	9.6	9.1	9.9
United Kingdom	10.3	8.6	7.2	6.9	8.8	10.1	10.5	9.7	8.7	8.2

[1] Data for 1994 are not directly comparable with data for 1993 and earlier years. For additional information, see the box note under "Employment and Unemployment Data" in the notes to this section.

[2] Labor force as a percent of the working-age population.

[3] Employment as a percent of the working-age population.

NOTE: See "Notes on the data" for information on breaks in series for the United States, France, Italy, the Netherlands, and Sweden. Dash indicates data not available.

45. Annual indexes of manufacturing productivity and related measures, 12 countries

[1992 = 100]

Item and country	1960	1970	1973	1980	1986	1987	1988	1989	1990	1991	1993	1994	1995	1996
Output per hour														
United States	–	–	–	71.9	88.2	94.3	97.8	97.0	97.7	98.2	102.1	108.1	115.1	120.2
Canada	40.5	60.4	72.2	78.5	92.6	93.5	93.9	94.3	95.8	96.3	101.7	106.2	107.5	108.6
Japan	14.0	38.0	48.1	63.9	76.9	81.2	84.8	89.5	95.4	99.4	100.5	101.8	109.2	114.3
Belgium	17.8	32.7	42.6	64.5	87.6	88.7	91.8	96.7	96.9	99.1	104.1	110.0	109.4	110.6
Denmark	29.5	52.1	66.1	89.2	90.0	89.6	92.9	96.1	96.0	97.9	106.8	–	–	–
France	23.0	45.5	53.9	70.5	85.2	86.7	92.7	97.4	99.1	98.7	101.8	110.4	114.5	117.0
Germany	29.2	52.1	61.1	77.3	89.5	88.4	91.6	94.4	99.0	102.0	100.8	108.4	112.0	117.0
Italy	19.6	36.8	43.9	64.0	82.6	85.0	86.6	89.4	92.8	95.3	104.5	107.4	110.7	113.3
Netherlands	19.5	38.6	48.8	69.8	91.0	91.7	93.8	97.1	98.5	99.6	101.9	114.2	119.6	122.6
Norway	36.7	57.8	67.6	76.7	89.0	93.3	92.1	94.6	96.6	97.5	100.6	101.4	102.5	103.3
Sweden	27.6	52.8	62.1	74.0	88.5	90.1	90.8	93.8	95.0	95.0	106.7	116.1	122.4	125.4
United Kingdom	30.2	43.3	51.4	54.4	74.0	78.2	82.7	86.2	89.3	93.9	105.7	109.3	107.6	106.1
Output														
United States	–	–	–	77.3	91.0	97.9	104.5	104.0	102.5	98.7	103.5	112.2	119.8	124.5
Canada	34.2	61.0	77.6	85.9	99.3	104.1	109.4	110.3	106.2	98.7	104.8	112.8	117.1	118.6
Japan	10.7	38.8	50.0	59.9	74.9	78.4	84.6	90.2	96.3	101.4	96.0	95.4	100.5	105.2
Belgium	30.7	57.6	70.6	78.2	89.0	88.7	93.1	98.9	101.0	100.7	96.9	101.4	104.5	104.7
Denmark	40.1	66.8	78.1	89.7	101.7	97.6	99.1	100.3	99.3	99.2	101.1	103.0	106.7	106.9
France	32.4	66.9	80.1	92.7	91.2	91.1	96.3	101.6	103.5	101.7	96.2	101.3	105.4	106.2
Germany	41.5	70.9	78.5	85.3	89.7	88.0	90.9	94.0	99.1	102.8	91.8	93.5	94.2	93.9
Italy	21.5	44.8	54.1	78.7	84.8	88.5	94.8	98.6	100.4	99.7	96.6	101.9	107.7	106.8
Netherlands	31.9	59.8	68.0	77.8	88.3	89.5	92.8	96.9	100.1	100.6	98.2	104.2	107.5	109.1
Norway	56.5	89.1	102.2	103.6	108.1	110.7	105.3	101.3	100.2	98.3	102.7	106.7	109.9	112.9
Sweden	46.5	81.7	88.5	91.8	105.2	107.7	110.2	111.6	110.6	103.6	101.3	115.7	130.1	132.9
United Kingdom	67.8	90.4	99.7	87.2	90.2	94.5	101.5	105.5	105.4	100.1	101.5	106.2	108.0	108.3
Total hours														
United States	92.2	104.5	110.5	107.6	103.1	103.9	106.8	107.2	104.9	100.6	101.4	103.8	104.1	103.5
Canada	84.5	100.9	107.5	109.5	107.2	111.4	116.5	117.0	110.8	102.5	103.0	106.2	108.9	109.1
Japan	76.3	102.3	104.0	93.8	97.3	96.6	99.8	100.8	100.9	102.0	95.6	93.7	92.0	92.0
Belgium	172.1	176.3	165.6	121.4	101.6	100.0	101.5	102.3	104.3	101.6	93.2	92.2	95.6	94.6
Denmark	135.8	128.3	118.1	100.6	113.1	109.0	106.6	104.3	103.3	101.3	94.7	–	–	–
France	140.6	147.0	148.7	131.5	107.2	105.1	104.0	104.4	104.5	103.0	94.5	91.8	92.0	90.8
Germany	142.4	136.1	128.4	110.3	100.1	99.6	99.2	99.5	100.1	100.8	91.1	86.3	84.1	80.3
Italy	109.6	121.8	123.4	123.0	102.7	104.1	109.5	110.2	108.2	104.6	92.4	94.8	97.2	94.3
Netherlands	163.3	155.1	139.3	111.4	97.0	97.6	98.9	99.7	101.6	101.0	96.4	91.3	89.8	89.0
Norway	154.0	154.3	151.2	135.0	121.6	118.6	114.3	107.1	103.7	100.8	102.1	105.2	107.2	109.3
Sweden	168.3	154.7	142.5	124.0	118.9	119.5	121.4	119.0	116.4	109.0	94.9	99.6	106.3	106.0
United Kingdom	224.4	208.6	194.0	160.3	121.9	120.9	122.7	122.3	118.0	106.6	96.0	97.2	100.3	102.1
Compensation per hour														
United States	14.9	23.8	28.6	55.8	78.6	80.8	84.0	86.8	91.0	95.7	102.9	105.6	108.7	112.2
Canada	10.5	18.3	22.9	50.2	77.5	79.8	83.3	86.4	91.3	97.1	100.1	102.1	103.9	108.5
Japan	4.3	16.5	26.8	58.6	76.1	77.9	79.2	84.2	90.7	95.9	104.6	106.7	110.0	111.6
Belgium	5.6	14.1	21.7	52.7	77.5	79.3	81.0	85.2	89.9	95.4	105.0	108.4	111.6	114.3
Denmark	4.6	13.2	20.4	49.4	72.9	79.7	82.5	87.2	92.6	96.2	102.4	–	–	–
France	4.3	10.5	14.9	41.3	76.8	79.7	82.7	87.2	91.8	96.3	103.6	106.2	107.7	109.6
Germany	8.1	20.8	29.1	53.8	73.1	76.6	79.6	83.4	89.4	95.1	106.1	112.1	117.4	123.5
Italy	1.6	4.6	7.0	27.9	62.6	66.1	68.7	75.5	84.0	93.1	107.1	106.6	109.2	117.1
Netherlands	6.4	20.3	31.8	64.7	85.1	87.8	87.7	88.5	90.8	95.2	103.7	108.2	111.1	114.5
Norway	4.7	11.8	17.0	39.0	69.1	78.5	83.3	87.2	92.3	97.5	101.5	104.4	109.2	114.0
Sweden	4.1	10.8	15.2	37.4	63.1	67.3	71.7	79.4	87.6	95.4	98.0	101.1	106.2	113.4
United Kingdom	3.1	6.4	9.6	33.8	59.4	66.3	70.3	75.2	83.5	93.0	106.3	108.3	108.7	110.8
Unit labor costs: National currency basis														
United States	–	–	–	77.6	89.1	85.7	85.9	89.5	93.1	97.5	100.8	97.7	94.5	93.3
Canada	25.9	30.3	31.8	63.9	83.6	85.3	88.7	91.7	95.2	100.9	98.4	96.1	96.7	99.9
Japan	30.9	43.3	55.7	91.7	99.0	96.0	93.4	94.0	95.0	96.5	104.1	104.9	100.7	97.7
Belgium	31.2	43.3	50.8	81.8	88.6	89.5	88.3	88.1	92.7	96.3	100.9	98.6	102.0	103.3
Denmark	15.5	25.3	30.8	55.3	81.0	89.0	88.8	90.7	96.5	98.3	95.9	97.9	101.4	103.5
France	18.7	23.0	27.6	58.6	90.2	92.0	89.3	89.5	92.6	97.6	101.8	96.2	94.0	93.7
Germany	28.0	39.9	47.6	69.6	81.6	86.7	86.9	88.3	90.3	93.2	105.3	103.5	104.8	105.5
Italy	8.0	12.6	16.0	43.7	75.8	77.8	79.4	84.4	90.5	97.7	102.5	99.2	98.6	103.3
Netherlands	33.0	52.7	65.1	92.7	93.5	95.8	93.5	91.1	92.1	95.6	101.8	94.8	92.9	93.4
Norway	12.9	20.4	25.1	50.8	77.7	84.1	90.4	92.2	95.6	100.0	100.9	102.9	106.5	110.3
Sweden	14.9	20.5	24.4	50.6	71.3	74.7	79.0	84.7	92.3	100.4	91.8	87.0	86.8	90.4
United Kingdom	10.3	14.8	18.8	62.1	80.3	84.5	85.0	87.2	93.5	99.0	100.5	99.1	101.0	104.4
Unit labor costs: U.S. dollar basis														
United States	–	–	–	77.6	89.1	85.7	85.9	89.5	93.1	97.5	100.8	97.7	94.5	93.3
Canada	32.3	35.1	38.4	66.1	72.7	77.8	87.1	93.6	98.6	106.4	92.1	85.0	85.2	88.5
Japan	10.9	15.3	26.1	51.5	74.5	84.2	92.4	86.3	83.1	90.9	118.8	130.1	135.9	113.8
Belgium	20.1	28.0	42.1	90.0	63.7	77.0	77.1	71.9	89.2	90.6	93.8	94.8	111.3	107.2
Denmark	13.5	20.4	30.9	59.4	60.4	78.4	79.5	74.8	94.1	92.7	89.2	93.0	109.4	107.7
France	20.2	22.0	32.9	73.5	69.0	81.0	79.3	74.3	90.0	91.5	95.1	91.8	99.8	96.9
Germany	10.5	17.1	28.1	59.9	58.7	75.3	77.2	73.3	87.2	87.7	99.4	99.6	114.3	109.5
Italy	15.9	24.7	34.0	62.9	62.6	73.9	75.1	75.8	93.0	97.0	80.3	75.8	74.6	82.5
Netherlands	15.4	25.6	41.2	82.1	67.1	83.1	83.1	75.5	88.9	89.8	96.3	91.6	101.8	97.4
Norway	11.3	17.8	27.2	63.9	65.3	77.5	86.1	82.9	95.0	95.7	88.3	90.7	104.5	106.1
Sweden	16.8	23.0	32.7	69.6	58.3	68.5	75.0	76.4	90.8	96.6	68.6	65.7	70.8	78.5
United Kingdom	16.4	20.1	26.0	81.7	66.7	78.4	85.8	80.8	94.5	99.1	85.5	86.0	90.2	92.3

– Data not available.

46. Occupational injury and illness rates by industry,[1] United States

Industry and type of case[2]	Incidence rates per 100 full-time workers[3]											
	1985	1986	1987	1988	1989[1]	1990	1991	1992	1993[4]	1994[4]	1995[4]	1996[4]
PRIVATE SECTOR[5]												
Total cases	7.9	7.9	8.3	8.6	8.6	8.8	8.4	8.9	8.5	8.4	8.1	7.4
Lost workday cases	3.6	3.6	3.8	4.0	4.0	4.1	3.9	3.9	3.8	3.8	3.6	3.4
Lost workdays	64.9	65.8	69.9	76.1	78.7	84.0	86.5	93.8	–	–	–	–
Agriculture, forestry, and fishing[5]												
Total cases	11.4	11.2	11.2	10.9	10.9	11.6	10.8	11.6	11.2	10.0	9.7	8.7
Lost workday cases	5.7	5.6	5.7	5.6	5.7	5.9	5.4	5.4	5.0	4.7	4.3	3.9
Lost workdays	91.3	93.6	94.1	101.8	100.9	112.2	108.3	126.9	–	–	–	–
Mining												
Total cases	8.4	7.4	8.5	8.8	8.5	8.3	7.4	7.3	6.8	6.3	6.2	5.4
Lost workday cases	4.8	4.1	4.9	5.1	4.8	5.0	4.5	4.1	3.9	3.9	3.9	3.2
Lost workdays	145.3	125.9	144.0	152.1	137.2	119.5	129.6	204.7	–	–	–	–
Construction												
Total cases	15.2	15.2	14.7	14.6	14.3	14.2	13.0	13.1	12.2	11.8	10.6	9.9
Lost workday cases	6.8	6.9	6.8	6.8	6.8	6.7	6.1	5.8	5.5	5.5	4.9	4.5
Lost workdays	128.9	134.5	135.8	142.2	143.3	147.9	148.1	161.9	–	–	–	–
General building contractors:												
Total cases	15.2	14.9	14.2	14.0	13.9	13.4	12.0	12.2	11.5	10.9	9.8	9.0
Lost workday cases	6.8	6.6	6.5	6.4	6.5	6.4	5.5	5.4	5.1	5.1	4.4	4.0
Lost workdays	120.4	122.7	134.0	132.2	137.3	137.6	132.0	142.7	–	–	–	–
Heavy construction, except building:												
Total cases	14.5	14.7	14.5	15.1	13.8	13.8	12.8	12.1	11.1	10.2	9.9	9.0
Lost workday cases	6.3	6.3	6.4	7.0	6.5	6.3	6.0	5.4	5.1	5.0	4.8	4.3
Lost workdays	127.3	132.9	139.1	162.3	147.1	144.6	160.1	165.8	–	–	–	–
Special trades contractors:												
Total cases	15.4	15.6	15.0	14.7	14.6	14.7	13.5	13.8	12.8	12.5	11.1	10.4
Lost workday cases	7.0	7.2	7.1	7.0	6.9	6.9	6.3	6.1	5.8	5.8	5.0	4.8
Lost workdays	133.3	140.4	135.7	141.1	144.9	153.1	151.3	168.3	–	–	–	–
Manufacturing												
Total cases	10.4	10.6	11.9	13.1	13.1	13.2	12.7	12.5	12.1	12.2	11.6	10.6
Lost workday cases	4.6	4.7	5.3	5.7	5.8	5.8	5.6	5.4	5.3	5.5	5.3	4.9
Lost workdays	80.2	85.2	95.5	107.4	113.0	120.7	121.5	124.6	–	–	–	–
Durable goods:												
Total cases	10.9	11.0	12.5	14.2	14.1	14.2	13.6	13.4	13.1	13.5	12.8	11.6
Lost workday cases	4.7	4.8	5.4	5.9	6.0	6.0	5.7	5.5	5.4	5.7	5.6	5.1
Lost workdays	82.0	87.1	96.8	111.1	116.5	123.3	122.9	126.7	–	–	–	–
Lumber and wood products:												
Total cases	18.5	18.9	18.9	19.5	18.4	18.1	16.8	16.3	15.9	15.7	14.9	14.2
Lost workday cases	9.3	9.7	9.6	10.0	9.4	8.8	8.3	7.6	7.6	7.7	7.0	6.8
Lost workdays	171.4	177.2	176.5	189.1	177.5	172.5	172.0	165.8	–	–	–	–
Furniture and fixtures:												
Total cases	15.0	15.2	15.4	16.6	16.1	16.9	15.9	14.8	14.6	15.0	13.9	12.2
Lost workday cases	6.3	6.3	6.7	7.3	7.2	7.8	7.2	6.6	6.5	7.0	6.4	5.4
Lost workdays	100.4	103.0	103.6	115.7	–	–	–	128.4	–	–	–	–
Stone, clay, and glass products:												
Total cases	13.9	13.6	14.9	16.0	15.5	15.4	14.8	13.6	13.8	13.2	12.3	12.4
Lost workday cases	6.7	6.5	7.1	7.5	7.4	7.3	6.8	6.1	6.3	6.5	5.7	6.0
Lost workdays	127.8	126.0	135.8	141.0	149.8	160.5	156.0	152.2	–	–	–	–
Primary metal industries:												
Total cases	12.6	13.6	17.0	19.4	18.7	19.0	17.7	17.5	17.0	16.8	16.5	15.0
Lost workday cases	5.7	6.1	7.4	8.2	8.1	8.1	7.4	7.1	7.3	7.2	7.2	6.8
Lost workdays	113.8	125.5	145.8	161.3	168.3	180.2	169.1	175.5	–	–	–	–
Fabricated metal products:												
Total cases	16.3	16.0	17.0	18.8	18.5	18.7	17.4	16.8	16.2	16.4	15.8	14.4
Lost workday cases	6.9	6.8	7.2	8.0	7.9	7.9	7.1	6.6	6.7	6.7	6.9	6.2
Lost workdays	110.1	115.5	121.9	138.8	147.6	155.7	146.6	144.0	–	–	–	–
Industrial machinery and equipment:												
Total cases	10.8	10.7	11.3	12.1	12.1	12.0	11.2	11.1	11.1	11.6	11.2	9.9
Lost workday cases	4.2	4.2	4.4	4.7	4.8	4.7	4.4	4.2	4.2	4.4	4.4	4.0
Lost workdays	69.3	72.0	72.7	82.8	86.8	88.9	86.6	87.7	–	–	–	–
Electronic and other electrical equipment:												
Total cases	6.4	6.4	7.2	8.0	9.1	9.1	8.6	8.4	8.3	8.3	7.6	6.8
Lost workday cases	2.7	2.7	3.1	3.3	3.9	3.8	3.7	3.6	3.5	3.6	3.3	3.1
Lost workdays	45.7	49.8	55.9	64.6	77.5	79.4	83.0	81.2	–	–	–	–
Transportation equipment:												
Total cases	9.0	9.6	13.5	17.7	17.7	17.8	18.3	18.7	18.5	19.6	18.6	16.3
Lost workday cases	3.9	4.1	5.7	6.6	6.8	6.9	7.0	7.1	7.1	7.8	7.9	7.0
Lost workdays	71.6	79.1	105.7	134.2	138.6	153.7	166.1	186.6	–	–	–	–
Instruments and related products:												
Total cases	5.2	5.3	5.8	6.1	5.6	5.9	6.0	5.9	5.6	5.9	5.3	5.1
Lost workday cases	2.2	2.3	2.4	2.6	2.5	2.7	2.7	2.7	2.5	2.7	2.4	2.3
Lost workdays	37.9	42.2	43.9	51.5	55.4	57.8	64.4	65.3	–	–	–	–
Miscellaneous manufacturing industries:												
Total cases	9.7	10.2	10.7	11.3	11.1	11.3	11.3	10.7	10.0	9.9	9.1	9.5
Lost workday cases	4.2	4.3	4.6	5.1	5.1	5.1	5.1	5.0	4.6	4.5	4.3	4.4
Lost workdays	73.2	70.9	81.5	91.0	97.6	113.1	104.0	108.2	–	–	–	–

See footnotes at end of table.

46. Continued—Occupational injury and illness rates by industry,[1] United States

Industry and type of case[2]	Incidence rates per 100 full-time workers[3]											
	1985	1986	1987	1988	1989[1]	1990	1991	1992	1993[4]	1994[4]	1995[4]	1996[4]
Nondurable goods:												
Total cases	9.6	10.0	11.1	11.4	11.6	11.7	11.5	11.3	10.7	10.5	9.9	9.2
Lost workday cases	4.4	4.6	5.1	5.4	5.5	5.6	5.5	5.3	5.0	5.1	4.9	4.6
Lost workdays	77.6	82.3	93.5	101.7	107.8	116.9	119.7	121.8	–	–	–	–
Food and kindred products:												
Total cases	16.7	16.5	17.7	18.5	18.5	20.0	19.5	18.8	17.6	17.1	16.3	15.0
Lost workday cases	8.1	8.0	8.6	9.2	9.3	9.9	9.9	9.5	8.9	9.2	8.7	8.0
Lost workdays	138.0	137.8	153.7	169.7	174.7	202.6	207.2	211.9	–	–	–	–
Tobacco products:												
Total cases	7.3	6.7	8.6	9.3	8.7	7.7	6.4	6.0	5.8	5.3	5.6	6.7
Lost workday cases	3.0	2.5	2.5	2.9	3.4	3.2	2.8	2.4	2.3	2.4	2.6	2.8
Lost workdays	51.7	45.6	46.4	53.0	64.2	62.3	52.0	42.9	–	–	–	–
Textile mill:												
Total cases	7.5	7.8	9.0	9.6	10.3	9.6	10.1	9.9	9.7	8.7	8.2	7.8
Lost workday cases	3.0	3.1	3.6	4.0	4.2	4.0	4.4	4.2	4.1	4.0	4.1	3.6
Lost workdays	57.4	59.3	65.9	78.8	81.4	85.1	88.3	87.1	–	–	–	–
Apparel and other textile products:												
Total cases	6.7	6.7	7.4	8.1	8.6	8.8	9.2	9.5	9.0	8.9	8.2	7.4
Lost workday cases	2.6	2.7	3.1	3.5	3.8	3.9	4.2	4.0	3.8	3.9	3.6	3.3
Lost workdays	44.1	49.4	59.5	68.2	80.5	92.1	99.9	104.6	–	–	–	–
Paper and allied products:												
Total cases	10.2	10.5	12.8	13.1	12.7	12.1	11.2	11.0	9.9	9.6	8.5	7.9
Lost workday cases	4.7	4.7	5.8	5.9	5.8	5.5	5.0	5.0	4.6	4.5	4.2	3.8
Lost workdays	94.6	99.5	122.3	124.3	132.9	124.8	122.7	125.9	–	–	–	–
Printing and publishing:												
Total cases	6.3	6.5	6.7	6.6	6.9	6.9	6.7	7.3	6.9	6.7	6.4	6.0
Lost workday cases	2.9	2.9	3.1	3.2	3.3	3.3	3.2	3.2	3.1	3.0	3.0	2.8
Lost workdays	49.2	50.8	55.1	59.8	63.8	69.8	74.5	74.8	–	–	–	–
Chemicals and allied products:												
Total cases	5.1	6.3	7.0	7.0	7.0	6.5	6.4	6.0	5.9	5.7	5.5	4.8
Lost workday cases	2.3	2.7	3.1	3.3	3.2	3.1	3.1	2.8	2.7	2.8	2.7	2.4
Lost workdays	38.8	49.4	58.8	59.0	63.4	61.6	62.4	64.2	–	–	–	–
Petroleum and coal products:												
Total cases	5.1	7.1	7.3	7.0	6.6	6.6	6.2	5.9	5.2	4.7	4.8	4.6
Lost workday cases	2.4	3.2	3.1	3.2	3.3	3.1	2.9	2.8	2.5	2.3	2.4	2.5
Lost workdays	49.9	67.5	65.9	68.4	68.1	77.3	68.2	71.2	–	–	–	–
Rubber and miscellaneous plastics products:												
Total cases	13.4	14.0	15.9	16.3	16.2	16.2	15.1	14.5	13.9	14.0	12.9	12.3
Lost workday cases	6.3	6.6	7.6	8.1	8.0	7.8	7.2	6.8	6.5	6.7	6.5	6.3
Lost workdays	107.4	118.2	130.8	142.9	147.2	151.3	150.9	153.3	–	–	–	–
Leather and leather products:												
Total cases	10.3	10.5	12.4	11.4	13.6	12.1	12.5	12.1	12.1	12.0	11.4	10.7
Lost workday cases	4.6	4.8	5.8	5.6	6.5	5.9	5.9	5.4	5.5	5.3	4.8	4.5
Lost workdays	88.3	83.4	114.5	128.2	130.4	152.3	140.8	128.5	–	–	–	–
Transportation and public utilities												
Total cases	8.6	8.2	8.4	8.9	9.2	9.6	9.3	9.1	9.5	9.3	9.1	8.7
Lost workday cases	5.0	4.8	4.9	5.1	5.3	5.5	5.4	5.1	5.4	5.5	5.2	5.1
Lost workdays	107.1	102.1	108.1	118.6	121.5	134.1	140.0	144.0	–	–	–	–
Wholesale and retail trade												
Total cases	7.4	7.7	7.7	7.8	8.0	7.9	7.6	8.4	8.1	7.9	7.5	6.8
Lost workday cases	3.2	3.3	3.4	3.5	3.6	3.5	3.4	3.5	3.4	3.4	3.2	2.9
Lost workdays	50.7	54.0	56.1	60.9	63.5	65.6	72.0	80.1	–	–	–	–
Wholesale trade:												
Total cases	7.2	7.2	7.4	7.6	7.7	7.4	7.2	7.6	7.8	7.7	7.5	6.6
Lost workday cases	3.5	3.6	3.7	3.8	4.0	3.7	3.7	3.6	3.7	3.8	3.6	3.4
Lost workdays	59.8	62.5	64.0	69.2	71.9	71.5	79.2	82.4	–	–	–	–
Retail trade:												
Total cases	7.5	7.8	7.8	7.9	8.1	8.1	7.7	8.7	8.2	7.9	7.5	6.9
Lost workday cases	3.1	3.2	3.3	3.4	3.4	3.4	3.3	3.4	3.3	3.3	3.0	2.8
Lost workdays	47.0	50.5	52.9	57.6	60.0	63.2	69.1	79.2	–	–	–	–
Finance, insurance, and real estate												
Total cases	2.0	2.0	2.0	2.0	2.0	2.4	2.4	2.9	2.9	2.7	2.6	2.4
Lost workday cases	.9	.9	.9	.9	.9	1.1	1.1	1.2	1.2	1.1	1.0	.9
Lost workdays	15.4	17.1	14.3	17.2	17.6	27.3	24.1	32.9	–	–	–	–
Services												
Total cases	5.4	5.3	5.5	5.4	5.5	6.0	6.2	7.1	6.7	6.5	6.4	6.0
Lost workday cases	2.6	2.5	2.7	2.6	2.7	2.8	2.8	3.0	2.8	2.8	2.8	2.6
Lost workdays	45.4	43.0	45.8	47.7	51.2	56.4	60.0	68.6	–	–	–	–

[1] Data for 1989 and subsequent years are based on the *Standard Industrial Classification Manual*, 1987 Edition. For this reason, they are not strictly comparable with data for the years 1985–88, which were based on the *Standard Industrial Classification Manual*, 1972 Edition, 1977 Supplement.

[2] Beginning with the 1992 survey, the annual survey measures only nonfatal injuries and illnesses, while past surveys covered both fatal and nonfatal incidents. To better address fatalities, a basic element of workplace safety, BLS implemented the Census of Fatal Occupational Injuries.

[3] The incidence rates represent the number of injuries and illnesses or lost workdays per 100 full-time workers and were calculated as (N/EH) X 200,000, where:

N = number of injuries and illnesses or lost workdays;

EH = total hours worked by all employees during the calendar year; and

200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year).

[4] Beginning with the 1993 survey, lost workday estimates will not be generated. As of 1992, BLS began generating percent distributions and the median number of days away from work by industry and for groups of workers sustaining similar work disabilities.

[5] Excludes farms with fewer than 11 employees since 1976.

– Data not available.

47. Fatal occupational injuries by event or exposure, 1992–96

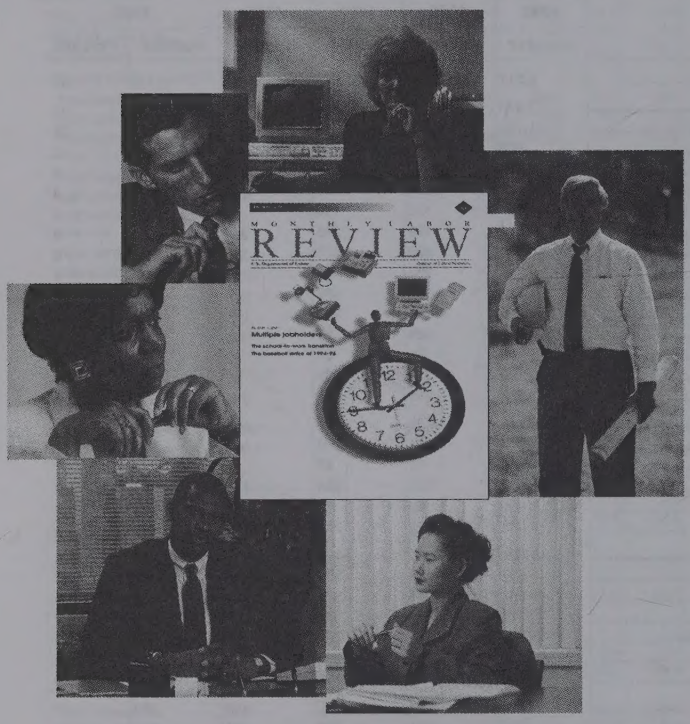
Event or exposure[1]	Fatalities					
	1992	1993	1994	1995	1996	
	Number	Number	Number	Number	Number	Percent
Total	6,217	6,331	6,632	6,275	6,112	100
Transportation incidents	2,484	2,499	2,762	2,588	2,556	42
Highway incident	1,158	1,242	1,343	1,345	1,324	22
Collision between vehicles, mobile equipment	578	659	654	642	656	11
Moving in same direction	78	100	120	127	95	2
Moving in opposite directions, oncoming	201	245	230	246	214	4
Moving in intersection	107	123	144	99	153	3
Vehicle struck stationary object or equipment	192	189	255	275	240	4
Noncollision incident	301	336	373	351	348	6
Jackknifed or overturned—no collision	213	236	274	261	264	4
Nonhighway (farm, industrial premises) incident	436	392	409	389	369	6
Overturned	208	214	226	210	204	3
Worker struck by vehicle	346	365	391	388	349	6
Railway incident	66	86	81	82	75	1
Water vehicle incident	109	119	94	87	107	2
Aircraft incident	353	282	426	283	320	5
Assaults and violent acts	1,281	1,329	1,321	1,280	1,144	19
Homicides	1,044	1,074	1,080	1,036	912	15
Hitting, kicking, beating	52	35	47	46	47	1
Shooting	852	884	934	762	751	12
Stabbing	90	95	60	67	79	1
Self-inflicted injuries	205	222	214	221	199	3
Contact with objects and equipment	1,004	1,045	1,017	916	1,005	16
Struck by object	557	565	590	547	579	9
Struck by falling object	361	346	372	341	402	7
Struck by flying object	77	81	68	63	58	1
Caught in or compressed by equipment or objects	316	311	280	255	283	5
Caught in running equipment or machinery	159	151	147	131	146	2
Caught in or crushed in collapsing materials	110	138	132	99	130	2
Falls	600	618	665	650	684	11
Fall to lower level	507	534	580	577	607	10
Fall from ladder	78	76	86	97	95	2
Fall from roof	108	120	129	143	148	2
Fall from scaffold, staging	66	71	89	82	88	1
Fall on same level	62	49	63	53	49	1
Exposure to harmful substances or environments	605	592	641	609	523	9
Contact with electric current	334	325	348	348	279	5
Contact with overhead power lines	140	115	132	139	116	2
Contact with temperature extremes	33	38	50	56	32	1
Exposure to caustic, noxious, or allergenic substances	127	116	133	107	119	2
Inhalation of substances	83	68	84	62	75	1
Oxygen deficiency	111	112	109	97	92	2
Drowning, submersion	78	90	89	77	67	1
Fires and explosions	167	204	202	207	184	3
Other events or exposures[2]	76	44	24	25	16	–

[1] Based on the 1992 BLS Occupational Injury and Illness Classification Structures.

[2] Includes the category "Bodily reaction and exertion."

NOTE: Totals for major categories may include subcategories not shown separately. Percentages may not add to totals because of rounding. Dashes indicate less that 0.5 percent or data that are not available or that do not meet publication criteria.

Are you prepared for the labor market of the 21st century?



Before you answer,
get the facts.

Before you decide,
check the research.

Before you act,
subscribe to

Monthly Labor Review

Stay tuned-in year-round to our analyses on the labor force, consumer and producer prices, labor productiv and technology, and many other topics.

Order today!

United States Government
INFORMATION

Order Processing Code:

*5551

Credit card orders are welcome!
Fax your orders (202) 512-2250
Phone your orders (202) 512-1800

☐ YES, please send _____subscriptions to:

Monthly Labor Review (MLR) at $25 each ($31.25 foreign) per year.

The total cost of my order is $_____.
Price includes regular shipping & handling and is subject to change.

Name or title (Please type or print)

Company name Room, floor, suite

Street address

City State Zip code+4

Daytime phone including area code

Purchase order number (optional)

Mail to: Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250–7954

Important: Please include this completed order form with your remittance.

For privacy protection, check the box below:
☐ Do not make my name available to other mailers

Check method of payment:
☐ Check payable to: Superintendent of Documents
☐ GPO Deposit Account ☐☐☐☐☐☐☐-☐
☐ VISA ☐ MasterCard ☐ Discover

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
(expiration date)

☐☐☐☐

Thank you for your order!

Authorizing signature 3/98

3 8198 314 752 229

Need information from the Bureau of Labor Statistics?

You can get it now on the WEB.

Here are the Bureau's addresses.

Bureau of Labor Statistics	http://stats.bls.gov
Division of Information Services	http://stats.bls.gov/opbinfo.htm
BLS Regional Offices	http://stats.bls.gov/regnhome.htm

Employment and Unemployment:

National establishment data	http://stats.bls.gov/ceshome.htm
State and area establishment data	http://stats.bls.gov/790home.htm
National labor force data	http://stats.bls.gov/cpshome.htm
Region, State, and metropolitan area labor force data	http://stats.bls.gov/lauhome.htm
Longitudinal research	http://stats.bls.gov/nlshome.htm
Covered employment and wages	http://stats.bls.gov/cewhome.htm
Occupational employment statistics	http://stats.bls.gov/oeshome.htm
Mass layoff statistics	http://stats.bls.gov/lauhome.htm

Prices and Living Conditions:

Consumer price indexes	http://stats.bls.gov/cpihome.htm
Producer price indexes	http://stats.bls.gov/ppihome.htm
Consumer Expenditure Survey	http://stats.bls.gov/csxhome.htm

Compensation and Working Conditions:

National Compensation Survey	http://stats.bls.gov/comhome.htm
Collective bargaining	http://stats.bls.gov/lmrhome.htm
Employment cost trends	http://stats.bls.gov/ecthome.htm
Employee Benefits Survey	http://stats.bls.gov/ebshome.htm
Occupational Compensation Survey	http://stats.bls.gov/ocshome.htm
Occupational injuries and illnesses	http://stats.bls.gov/oshhome.htm

Productivity:

Quarterly labor productivity	http://stats.bls.gov/lprhome.htm
Industry productivity	http://stats.bls.gov/iprhome.htm
Federal Government productivity	http://stats.bls.gov/gprhome.htm
Multifactor productivity	http://stats.bls.gov/mprhome.htm

Employment Projections ..... http://stats.bls.gov/emphome.htm

International data:

Foreign labor statistics	http://stats.bls.gov/flshome.htm
U.S. import and export price indexes	http://stats.bls.gov/ipphome.htm
Foreign direct investment	http://stats.bls.gov/fdihome.htm

internet

U.S. DEPARTMENT OF LABOR
Bureau of Labor Statistics
Postal Square Building, Rm. 2850
2 Massachusetts Ave., NE
Washington, DC 20212-0001

Official Business
Penalty for Private Use, $300
Address Service Requested

Periodicals
Postage and Fees Paid
U.S. Department of Labor
USPS 987–800

Schedule of release dates for BLS statistical series

Series	Release date	Period covered	Release date	Period covered	Release date	Period covered	MLR table number
Employment situation	June 5	May	July 2	June	August 7	July	1; 4–20
Productivity and costs	June 4	1st quarter			August 11	2nd quarter	2; 39–42
U.S. Import and Export Price Indexes	June 11	May	July 15	June	August 13	July	34–38
Producer Price Indexes	June 12	May	July 10	June	August 14	July	2; 31–33
Consumer Price indexes	June 16	May	July 14	June	August 18	July	2; 28–30
Real earnings	June 16	May	July 14	June	August 18	July	13–16
Employment Cost Indexes			July 30	2nd quarter			1–3; 21–24